ANIMALS AND THE PRECONTACT INUIT OF LABRADOR: AN EXAMINATION USING FAUNAL REMAINS, SPACE AND MYTH

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By

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ABSTRACT

This thesis examines the faunal remains recovered from two sites in Nachvak Fiord, Labrador and attempts to interpret them through an examination of spatial patterning and ethnographically recorded data on historic Inuit animal use. The faunal remains used were recovered from house and midden contexts at a late precontact Inuit site (Nachvak Village, IgCx-3) and an early historic Inuit site (Kongu, IgCv-7). The spatial distribution of these remains is examined using seven different classification schemes that seek to reveal differences in disposal and discard practices. These data are integrated with information recorded in regional ethnographies that describe physical interactions between historic Inuit and locally available animals, and also ideological interactions in the form of animal myths. Through the connections among faunal remains, spatial analyses and mythology, a potential precontact Inuit classification scheme is outlined that may better approximate the relationships perceived among animals within the Inuit worldview.

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Chapter 1

Introduction

1.1 Scope of the Thesis

This thesis examines the discourse among faunal remains, spatial deposition and ethnographically recorded myths, to the extent that this discourse concerns the complex relationships that the precontact Inuit of Labrador had with animals, and how these relationships evolved in association with an increasing European presence in Labrador. The whales, walruses, polar bears, seals, and caribou of northern Labrador, as well as other mammal, bird and fish species, would all have been essential to the survival of precontact Inuit groups. The nature of northern Labrador settlement and subsistence patterns around AD 1500 ensured that people were in contact with animals in all facets of their lives; not just while travelling, hunting, butchering and eating, but also while making items out of animal bones or skins, using tools derived from bone, ivory or antler, and playing with animal-shaped figurines. As such, animals existed prominently in the conscious and subconscious mind, and this existence is observable in the ways that animals figure in the myths, beliefs, art, rituals, songs, stories and place names of northern Labrador. While an investigation into all of these forms of animal representations would be illuminating, this thesis restricts itself to the portrayal of animals in myths. These representations are examined in association with faunal and spatial analyses of animal bones recovered from two sites located in Nachvak Fiord, Labrador, Nachvak Village (IgCx-3) and Kongu (IgCv-7), to achieve the overall objective of this research, which is to discover aspects of a scheme by which the

precontact Inuit of Labrador may have classified animals.

Figure 1.1 shows the locations of Nachvak Village and Kongu within the fiord and their location relative to the rest of Labrador. Four seasons of excavation at Nachvak Village, a predominately precontact Inuit village site consisting of approximately 16 semi-subterranean winter dwellings, resulted in the near-complete excavation of four houses and the sampling of two midden areas. Two seasons of excavation at Kongu, a historic Inuit village site consisting of six semi-subterranean winter dwellings, resulted in the sampling of four middens. The materials recovered during these seasons were used to answer some explicit research questions, which are outlined in the next section.

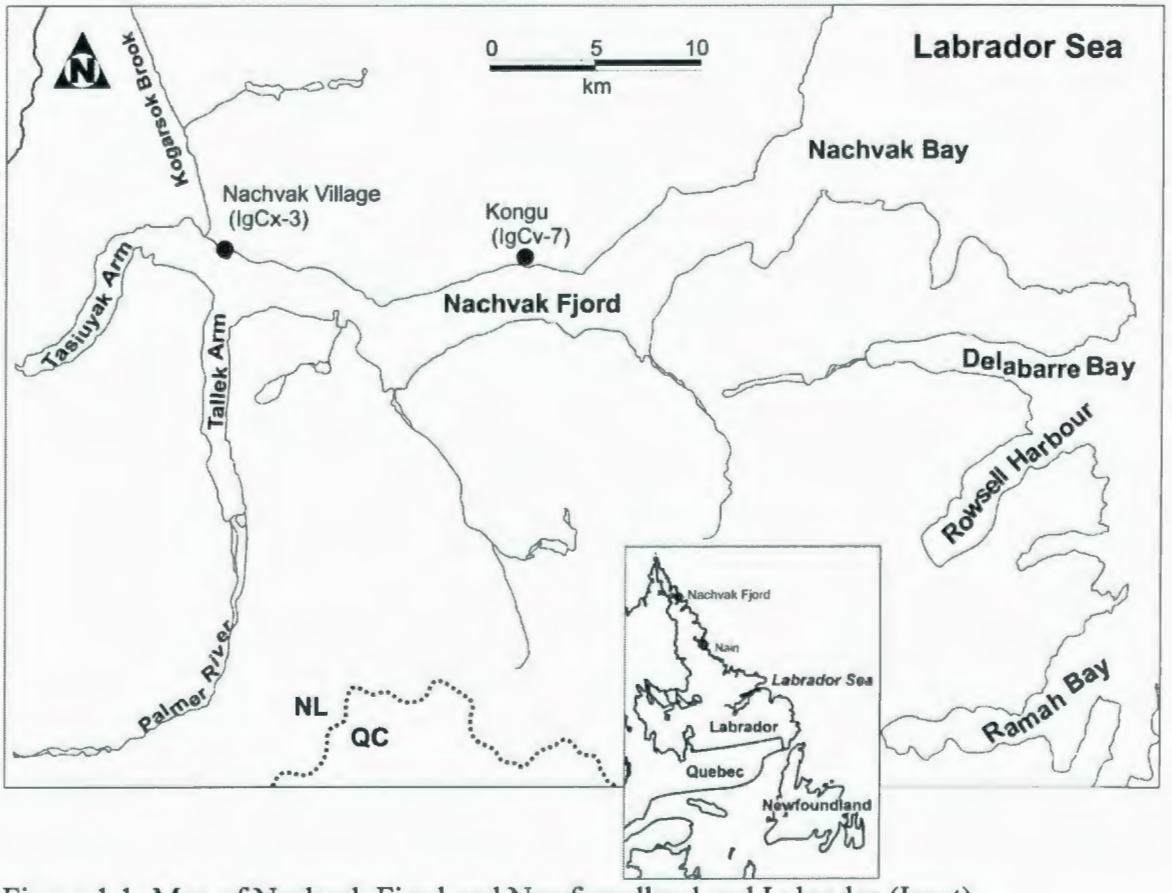


Figure 1.1: Map of Nachvak Fiord and Newfoundland and Labrador (Inset)

1.2 Research Questions

Three main research questions were formulated to foster a comparison between faunal remains and myths. The first research question focussed solely on the faunal remains: how does species composition and abundance differ within and between house and midden contexts at a precontact and a historic site in northern Labrador? Answering this question entailed the identification and description of the faunal material recovered from the Nachvak Village and Kongu sites. The relative frequencies of fauna were compared within and between sites, and a case study was conducted into the spatial distribution of the remains recovered from one dwelling to demonstrate where, relative to the house architecture and to other animals, the faunal remains were found.

The second research question focussed solely on the myth data: in what ways do historic Inuit myths describe animals? Answering this question entailed a systematic analysis of the ethnographic literature from areas geographically close to Nachvak Fiord, including northern Labrador, Ungava Bay, Baffin Island and Western Greenland.

The last research question combined the results of the first two: what relationships exist among the types and frequencies of animals represented in the faunal assemblages, the spatial patterning of these remains relative to house architecture, and the portrayal of animals in myths? Answering this question involved examining associations between the animals identified in the faunal remains and those from the ethnographic data. These associations were further interpreted as signifiers of relational aspects of an animal classification scheme.

1.3 Thesis Layout

This thesis consists of seven chapters. Chapter 2 introduces and summarises the theoretical concepts used to direct the research. Beginning with a discussion of the differences between Western and indigenous worldviews, this chapter presents an argument for the applicability of ethnoscience and structuralism to investigations of human cognition in the past. It is important to review these theories before discussing the contexts in which this research fits, as they provide the foundation for the research goals and methodology.

Chapter 3 reviews the background literature on the topic. It includes a review of previous work that has sought to create precontact animal classification systems, as well as reviews of the precontact Inuit culture of northern Labrador, as documented in ethnographies, and of previous archaeological work conducted there. Chapter 3 also introduces the two sites from which the faunal materials derive and provides detailed information on the excavations at these sites.

Chapter 4 introduces the faunal assemblages. It begins by discussing the methodology used to identify the faunal remains and the calculations used to summarise the data. Following this, the abundances and types of faunal remains identified from each site context are presented. The chapter ends with an interpretation of the annual faunal usage at each site, based on the seasonal availability of the taxa represented in the assemblages.

Chapter 5 discusses the spatial analysis of the faunal remains. Spatial analyses were performed using faunal material recovered from House 2 at Nachvak Village. The

faunal remains were quantified in various ways, based on their modern taxonomy, body part frequencies, the natural realm (land, air or sea) normally occupied by each taxon, age at death and presence of cut marks. These values were graphically displayed by their recovery location within House 2.

Chapter 6 introduces the myth data. Myths that were recorded in ethnographies from Labrador and surrounding areas were systematically analysed. This chapter reviews the methodology employed and presents the results of the analysis. Chapter 6 concludes with an outline of one potential precontact Inuit animal classification scheme, as constructed from the faunal, spatial and myth data. Chapter 7 provides some final thoughts regarding the work presented and suggests directions for future research.

Chapter 2

Theoretical Relevance

2.1 Introduction

Archaeologists working in arctic regions tend to recover faunal assemblages that are relatively well preserved, and this has resulted in a rich zooarchaeological literature that provides detailed information on many aspects of how past arctic societies utilised locally available animals (e.g. Betts and Friesen 2004; Coltrain et al. 2004; Darwent 2001; Diab 1998; Henshaw 1999; Hodgetts 2005; Lyman et al. 1992; McCartney and Savelle 1985; Morrison 1997; Savelle and McCartney 1999; Waguespack 2002; Woollett 2007). This literature provides a solid foundation on which to expand zooarchaeological inquiry into the exploration of alternative ways of acquiring information on past human-animal relationships, particularly those associated with ideology and spirituality. While researchers have attempted to reconstruct the spiritual and ideological associations between animals and prehistoric peoples, for the precontact Inuit (Patton 1996; Stewart et al. 2004; Whitridge 2001, 2002) as well as for prehistoric groups from other geographical areas (e.g. DeBoer 1997; Holt 1996; McNiven and Feldman 2003; Oetelaar 2000; Sharp 1976; Thackeray 2005), there is much work yet to be done. The main difficulties with zooarchaeological investigations into precontact spiritual and ideological relationships with animals are that such associations are inherently difficult to infer, and that most researchers are divorced from frequent first-hand experiences with wild animals, and thus cannot readily connect with a worldview in which animals were as omnipresent as they would have been for many prehistoric peoples (Hallowell 1926:6).

The interpretations of faunal remains made using the zooarchaeologist's scientific worldview and those made using an indigenous worldview can differ drastically (Harris 2005; Million 2005). This chapter examines the theoretical implications of this discrepancy as it pertains to precontact and historic Inuit worldviews regarding animals. The first section defines worldviews and discusses the general differences between indigenous and non-indigenous worldviews. The second and third sections introduce the two main approaches used to direct this research, ethnoscience and structuralism, and outline the relevance of these frameworks for revealing aspects of the precontact Inuit animal classification system.

2.2 Worldviews

A worldview is defined as the structure of reality assumed by a given cultural group; it functions to replace chaos with perceived order by supplying members of the culture with the definitions of reality that they need to make sense of their surroundings (Mussell et al. 2004:14). Worldviews underlie all facets of human thought and action, are formed by individual experiences as well as by socialising forces of the cultural group, and exist at both conscious and subconscious cognitive levels (Hewitt 2000:111; McNeill 1998:1). Scholarly discussions of North American worldviews focus on the differences between Western and indigenous ones, which are defined depending on the knowledge paradigms used to define reality (Harris 2005). The societies included within each of these headings are not uniform in their definitions of reality, and in some cases, may only be remotely similar. For example, the worldviews of the Anishinaabi peoples from the climatically temperate Great Lakes region and the Inuit peoples from the

extreme environments of the High Arctic are both classified as 'indigenous'. Clearly, these cultures exhibit drastic differences in the outward expression of their identity, which reflect differences in the cultures' particular histories, the composition of the surrounding environments, and their overall cultural experience (Nicholas 2005). Regardless of this fact, researchers argue that general similarities in overall worldview exist among North American indigenous groups (Harris 2005:34). The characteristics of the indigenous and Western worldviews are described below.

2.2.1 *Western*

The Western worldview is globally dominant; it is synonymous with modern scientific knowledge and practices in virtually all parts of the world. It is characterised by agreed-upon meanings that guide the interactions of Westerners with one another, and with the biological, chemical and physical spheres around them (Hallowell 1926:5; McNeill 1998:1). The Western worldview is one that surveys the world from a human-centred viewpoint by invoking an active viewer (the Westerner) and a passive subject (the world) (Bender 1999:31). Within this viewpoint, many distinctions exist. The real world is separate from the supernatural world; the present is separate from the past; people are separate from nature (Nicholas 2005:85). Most Westerners perceive time in a linear fashion, and many aspects of the universe, such as rocks, mountains, weather phenomena, and celestial bodies, are considered inanimate (Harris 2005:35). This inanimate nature of the universe and much of what it contains allows it to be utilised and controlled by Westerners without obligations (Bender 1999:31).

The global aspect of the Western worldview has led to some conventional

standards regarding philosophies of nature (Scarre 1990:17). In particular, the proper place of plants and animals in relation to humans and to each other is arguably consistent. The advent of the Linnaean taxonomic system of classification defined the appropriate hierarchical ways in which Westerners should classify plants and animals (Hallowell 1926; Reitz and Wing 1999:34). By incorporating genetics into observations made of the morphological traits shared by organisms, Western scientists were able to state the degree to which organisms were biologically related to all others. This standardization reduces the degree of ambiguity in discourse when Westerners correspond with each other on the taxonomy of organisms.

Most archaeologists subscribe to the Western worldview. According to the Western paradigm, the archaeological record is a collection of inanimate artefacts, ecofacts, features and sediments that contain information about the past (Watkins 2003:277). By using these objects and features as an organizational foundation, archaeologists have created a temporal framework of distinct cultures, periods and phases in which time is linear (Politis 2003:246). The creation of typologies has allowed artefacts and features, especially harpoon heads, lithic types and house styles in arctic archaeology, to be seriated and compartmentalised into temporal and spatial sequences that Westerners can appreciate using the concepts inherent to their worldview (Politis 2003:246).

In some regions, including parts of North America and Australia, there exist indigenous zooarchaeologists who, having an indigenous worldview and yet working within the Western academic worldview, are able to regard the archaeological record,

especially that which is ancestral to themselves, with a mindset more similar to that of the people responsible for creating the assemblage (e.g. Million 2005). There are few comparable zooarchaeologists within the discipline of arctic archaeology. This means that most zooarchaeologists who interpret faunal remains from arctic sites are doing so within the conventions of their own, usually Western, worldview; this can be viewed as somewhat problematic. Not only is the arctic landscape unlike anything most Westerners have ever experienced, let alone inhabited, but the way of life of the Inuit, both before and after contact, also differs drastically from that of archaeologists who make sporadic forays into the region to excavate sites. As the types of research questions posed usually relate in some way to the life experiences of the researcher, it is not serendipitous that arctic zooarchaeologists usually focus their interpretations on topics more familiar to their own Western worldview. Rather than interpreting the recovered faunal remains from precontact Inuit sites solely in terms of their own Western worldview, which tends to separate symbolic and ideological elements from economic and social ones, researchers could try to identify and incorporate aspects of the Inuit worldview into their analyses, to approximate some aspects of precontact Inuit perceptions of animal-human relationships (Boaz and Uleberg 2000:103; Harris 2005:34).

2.2.2 *Indigenous*

Compared to the global uniformities of the Western worldview, indigenous worldviews are more culturally and regionally specific (Harris 2005:34). This relates to the history of indigenous groups, where each group occupied, used and understood a relatively specific territory that included environments that were differentially composed

of various organisms and features, and that served to influence contextually-based indigenous worldviews (Stewart et al. 2004:184). In the arctic, the Inuit regard the world and all its dimensions as an unstable and dangerous place (Briggs 1991:259). This perception results in a worldview where nothing is taken for granted, no answer is fixed, and nothing is permanently knowable (Briggs 1991:262).

The understanding the Inuit have for the world has implications for their views of animals. The game upon which the historic Inuit depended were mobile, and thus predictable only to a point, which meant that humans and animals had to be allies (Møller Hansen 2003). Inuit recognized that the survival of their culture into modern times depended upon the enduring relationships with other animals in the environment (Stewart et al. 2004:203). Not only did people communicate with animals through the strategic placement of *inuksuit* on the landscape, but the maintenance of rituals also ensured the continuation of harmonious relationships (Møller Hansen 2003). The interconnectedness of all life situated animals in all realms of human existence, including what equates to the Western concepts of economy, society, and spirituality (Harris 2005:35). This implies that interpretations of the zooarchaeological record made from an indigenous perspective will likely yield different associations between faunal remains, artefacts and features than what archaeologists currently produce.

Indigenous worldviews regard archaeology very differently than does the Western one. To the Inuit, archaeological sites are places where ancestors and spirits continue to reside and are places that are as much a part of the present as they are of the past (Anawak 1989; Watkins 2003:277). Archaeological sites are also places that are

excavated by Southern outsiders who frequently come to the North for just long enough to extract the artefacts and then leave, without taking much time to understand Inuit or arctic life (Bielawski 1989:231). In many instances, the Inuit want archaeologists to consult with them about excavations on their land and do not want the artefacts removed to distant places (Anawak 1989:49). The practice of incorporating Inuit workers, particularly Inuit youth, into the excavation process and having elders visit during excavations has served as a step toward educating and training local communities in the practice of archaeology, while at the same time serving to educate the archaeologists in the traditional values and beliefs of Inuit society (Anawak 1989; Bielawski 1989:232).

Given the interrelatedness between worldview and human thoughts and behaviours, the cohesion amongst people of a given culture who share a worldview, and the amount of time that has passed since contact in the north began, it is evident that the worldviews of the precontact Inuit and those of Western archaeologists are not the same (Bates 2007; Bielawski 1989:228). Many interpretations based on faunal remains recovered from precontact Inuit sites do not reflect important ideological and spiritual aspects of the worldviews of the precontact Inuit, which are most likely vestigial in those of their descendents, the modern Inuit. How can zooarchaeologists interpret the faunal materials they recover from precontact Inuit sites without imposing themselves and their definition of reality on the data, and without misrepresenting the worldviews reflected in human-animal relationships of these past arctic societies (Hayden 1984)? The answer is that individuals cannot completely separate themselves from their worldview, nor can they completely adopt the worldview of another cultural group, especially one existing in

the past. What is required, then, is a synthesis of worldviews that will allow zooarchaeologists to interpret and understand faunal remains according to both definitions of reality (Bielawski 1989). Arguably, the incorporation of relevant theoretical frameworks into faunal analyses will allow zooarchaeologists to extract elements of precontact Inuit worldviews from the archaeological record, and the incorporation of these ancient philosophies into archaeological explanations could foster other meaningful interpretations of past human-animal relationships. I suggest that the use of two theoretical frameworks can aid Western zooarchaeologists in synthesising their own worldview with that of the precontact Inuit: ethnoscience, which seeks to define the mechanisms by which indigenous ecological knowledge is classified, and structuralism, which seeks to determine the underlying principles of cognition. The use of these theoretical frameworks presupposes that the traditional Inuit worldview is an appropriate model for that which existed in the past, and while this may not be so, there are no other viable models. The direct historical approach, which uses aspects of living cultures as analogs for those in the past, in being advocated in this context because the precontact Inuit are the known ancestors of the historic and modern Inuit, and thus it is believed that the historic and modern Inuit views of the world may reflect or incorporate those of the past (Baerreis 1961; Hayden 1984; Lyman and O'Brien 2001). The use of ethnological and historical data serves to augment the archaeological data where, as in this case, continuity is demonstrated between living and past societies, and provides a more complete synthesis of precontact Inuit-animal relationships (Baerreis 1961:55).

2.3 Ethnoscience

Ethnographies and oral histories of many indigenous groups reveal that complex, symbiotic relationships exist among humans, plants, animals and all other aspects of nature. Thus, anyone attempting to investigate the ways in which past peoples understood their environment must review the literature that seeks to expose the mechanics behind classifications of nature (e.g. Descola 1994; Tanner 1979; Turner 2000). Included in this body of literature is ethnoscience, the systematic description of indigenous classification systems that categorise biological, zoological, medicinal, pharmacological and epidemiological elements of indigenous knowledge (Antweiler 2004:4). Indigenous classifications serve to create order out of chaos by identifying a proper place for each organism within a relational taxonomy (Howes and Chambers 1980:330; Philo and Wilbert 2000:6). Indigenous taxonomies are not as formalised as Western ones, and they often change as knowledge is generated within a lifetime and over generations (Goody 2003:252; Ingold 2003:302). Much of the published work on indigenous taxonomies discusses one of two main issues: whether indigenous classification systems reflect objective 'natural' relationships removed from subjective cultural associations (termed 'validity'), and whether indigenous taxonomies consist of universal principles, such as the connection between linguistics and the inherent ability to classify. These issues are discussed below.

2.3.1 *Utilitarianism and Intellectualism*

At the inception of studies in ethnoscience in the 1950s, researchers attributed different degrees of validity to modern scientific and indigenous taxonomic systems,

correlated with the degree of objectivity perceived in each. Most scholars took a utilitarian viewpoint toward indigenous taxonomies, arguing that indigenous groups assigned names to those species that have practical and important utility for their existence, to the exclusion of less utilised organisms (Castree and Braun 1998:16). For example, the Chewa people of Malawi do not use, and thus do not classify, most of the fungi that grow in their local environment (Morris 2000:83). Indigenous taxonomies of plants and animals were considered completely subjective, depending almost exclusively upon the culture, knowledge and cognitive ability of the individual informants. In the case of the Chewa, knowledge about fungi is largely confined to women, and thus women informants provide a more extensive classification of fungi than men (Morris 2000:78). Examples such as this strengthened the theory that people cognitively construct nature, and therefore informant's knowledge regarding nature embodies elements of society, culture, economics, politics and personal experience (Castree and Braun 1998:5). People are not aware of the social contexts inherent in their knowledge of nature, however, because they consider their orderings of nature to reflect true representations of the world (Castree and Braun 1998:19). The utilitarianist position suggested that since ethnoscientific classification systems were based on the functional uses of organisms, the frequency of encountering a particular organism, and other similar 'subjective' experiences, they revealed more about the social interrelatedness of nature and culture than they did about the explicit relationships among organisms.

In contrast, scholars took an intellectualist position toward Western taxonomies, arguing that Westerners classified biological organisms based on relative degrees of

genetic and biological similarities and differences observed among them, independent of the social or practical uses that these species might possess (Brown 2000:67). Western taxonomies objectively relied on genetics, phenotypes and geography to define relationships between organisms. Scientific views of nature were presumably independent of culture, society or politics, and thus reflective of the 'true' external world (Castree and Braun 1998:27). Intellectualists also argued that the general openness of science allowed for the possibility that alternate perspectives might lead to changing views of the world at any time (Howes and Chambers 1980:330).

Following poststructuralist and postmodernist discourses, scholars began to recognise that science exhibits subjectivity, especially in terms of its placement in political and institutional agendas, which acts upon the outcomes of scientific models (Johnson 1999). While this does not alter the results of genetic tests that determine the degree of biological relatedness of organisms, it does affect the locations where scientists choose to go in search of new organisms to classify, among other things. Similarly, scholars now recognise that indigenous taxonomies do exhibit intellectualist objectivity, particularly in the naming of organisms (Brown 2000:67). For example, the Achuar Indians of Upper Amazonia (Ecuador and Peru) have an animal classification system containing individual names for 33 different species of butterfly, none of which is of particular utility to the Achuar (Descola 1994:82). The Inuit provide another example of intellectualism in indigenous taxonomies, as they classify all animals existing on the landscape, including many species of insect, parasite and mollusc, when these have no utilitarian function in Inuit life (Randa 2002). Even use of the term 'ethnoscience,' which

contains the word 'science', reflects the fact that scholars are now willing to associate indigenous knowledge with attributes previously associated with science alone.

Indigenous taxonomies contain some elements of both utilitarianism and intellectualism. The Karam of New Guinea, for example, classify cassowaries (which are considered birds in Linnaenan taxonomy) as intermediaries between birds and pigs (Bulmer 1967:8). This reflects the unusual morphological and behavioural characteristics of the cassowary, as well as its important and unique status in Karam economy (Bulmer 1967:11). This is another example that demonstrates how nature and culture are embedded in one another, where observations of nature cannot be separated from social contexts. Many more plant and animal species will likely exist in a given landscape than will be utilised by humans, and if taxonomic systems serve to bring about order by situating organisms relative to others, then most will attempt to classify organisms that may be visible but not used.

2.3.2 *Linguistic Principles*

Another issue in ethnoscientific studies is the degree to which linguistic principles reflect humans' inherent ability to classify biological and non-biological aspects of their surroundings (Brown et al. 1976). Berlin et al. (1973:215) argue that all indigenous taxonomies consist of no more than five hierarchical, mutually exclusive categories, each of which contain taxa that are characterized by similar linguistic features that permit their recognition. The first category is the unique beginner (Level 0), which is the most generalized description of the organism, for example 'plant' or 'animal'. Many indigenous classifications leave these unique beginners as unlabelled (Brown 2000:66).

The second category is life form (Level 1), which is comparable to 'Class' in Western taxonomic systems, and usually consists of no more than ten members, for example 'tree' or 'bird' (Berlin et al. 1973:215). The third category is generic (Level 2) and is similar to 'Genus' in the Western taxonomic system, for example 'oak'. The fourth and fifth categories are specific (Level 3) and varietal (Level 4), which compare to 'Species', for example 'white oak', and 'Subspecies', for example 'northern white oak', in Western taxonomic systems. Interestingly, Brown et al. (1976) applied Berlin et al.'s model to American automobiles, Finnish winter vehicles, Thai spirit-ghosts, and American tools and found that the linguistic principles used to classify biological organisms were the same as those for non-biological objects. This lends credibility to the claim of a universal human conceptualisation of nature that is inherent in language and to the cognitive process of classification.

Each of the categories in Berlin et al.'s (1976) model relates to the field of linguistics by the number of words needed to define the organism and the degree of similarity between names of related or unrelated organisms. For example, hens-and-chickens is a type of plant that is not biologically related to hens or chickens in any way, and yet the fact that the name associates it with poultry has meaning in linguistic cognition (Berlin et al. 1973:217). Most indigenous classifications systems assign organisms to the generic category, making it the most important one, as generic names usually convey enough meaning to allow humans to comprehend what is intended by the term without needing further definition to the specific or varietal levels (Berlin et al. 1973:215). For example, 'squirrel' might be enough for humans in a given environment

to perceive the meaning of the term without needing to classify to the lower levels of 'ground squirrel' or 'arctic ground squirrel'.

There are three problems with Berlin et al.'s (1973) arguments. First, to characterise indigenous classifications as consisting of definite taxa subsumed under definite labels related to their representation in linguistics implies stasis in the established order (Ellen 1979). To characterize these processes as static likely reflects a desire on the part of the researcher to control the situation, in order to apply certain techniques and approaches (Goody 2003:260). This principle ignores the notion that culture affects people's perceptions of organisms, which would imply that as culture changed, so would the relationship between humans and their thoughts about organisms. In fact, it is more likely that multiple taxonomies exist for indigenous groups, because individual experience governs perceptions of nature as much as overarching cultural beliefs do (Hewitt 2000; McNeill 1998).

Secondly, the strong association between taxonomic categories and language ignores all taxa that are present in a given environment but linguistically unlabelled, or else whose definition is ambiguous. For example, in some parts of the world the abundance of vegetation requires the subjective naming of the most abundant taxa, with a vague cognitive association with rarer taxa (Brown 2000). Similarly, it may be difficult to decide if a given shrub is a bush or a tree, and thus the way that such a shrub is classified will depend on the classifier (Ellen 2003:52). Many scholars recognise the limitations of taxonomic logics based solely on linguistics, which has led toward a tendency to use psychological models (Ellen 2003:52).

Thirdly, Berlin et al.'s (1973) taxonomic principles are similar to scientific taxonomic systems in that the categories are mutually exclusive and hierarchical. Morris (2000:79) argues that indigenous taxonomies are likely similar to a complex web of resemblances. In such an analogy, a few central species that are perhaps of greatest importance may be the focus of the classification system, with all other organisms related to them. Such a model would allow for the inclusion of unnamed organisms that are recognised in association with others. Hierarchical taxonomic systems either ignore or subsume under one of the higher categories organisms without explicit names, which may not accurately reflect the mechanics of indigenous taxonomies. While a hierarchical model may be appropriate for some indigenous classification systems, it may also distort the perceived associations in nature.

In sum, indigenous taxonomies can reveal much about the ways that people cognise organisms in their environment. Humans go through a mental process that turns discrete and diverse organisms into ordered thoughts regarding the place of these organisms in the grand scheme of human interaction with the environment. Anthropology is concerned with the contents of thought that support indigenous classifications, and not so much with the specific zoological or botanical knowledge that these classifications produce (Fabre 2003:229). Linguistic principles may be integral to indigenous taxonomies, which reflect coherence between the orderings of thought and language. If such principles are legitimate, then archaeologists could use these universals in conjunction with structuralist methods, which are described below, to infer how past people classified organisms in local environments.

2.4 Structuralism

Structuralism is the study of the structure of the conscious mind in terms of the sensations, images and feelings that are the very elements of the mind's structure (Ashcroft 2002: 16). Structuralism borrows the term 'structure' from the field of linguistics, where a structure describes the binary principles of contradiction, such as the way that complementary voiced and unvoiced consonants, for example V's and F's, are in opposition and are pronounced differently (Champagne 1992:3). Lévi-Strauss was the first anthropologist to suggest that the model of binary principles observed in linguistics was also applicable to thoughts about virtually all reality, such as hot/cold, inside/outside or male/female, because all aspects of society serve to communicate meaning, just as language does (Leone 1982:742; Lévi-Strauss 1967). By examining a particular aspect of culture, and attempting to both contrast and relate it to other aspects of culture through various arrangements of linguistic commonalities, the meaning of the culture as a whole would be comprehensible (Lévi-Strauss 1963:16).

Criticism of the anthropological use of structuralism focuses on the lack of criteria for systematically determining all the potential associations between aspects of culture that might exist, which would then allow an anthropologist to choose from the list a small set of interrelated connections on which to focus an analysis (Kronenfeld and Dicker 1979:531). Due to various constraints, most researchers cannot articulate all associations among various aspects of culture. Thus, structuralist analyses, like most other forms of analysis, result in some themes and commonalities being emphasised over others, at the discretion of the researcher. Also, as cultures change, so do the relationships between the

ideological, social and linguistic elements of that culture (Layton 2006:33). By using a method that is relatively static in its application for the analysis of fluid, ever-changing cultural aspects, it becomes difficult to articulate meanings inherent among elements of culture that will endure across time and space. Validation of the use of Lévi-Strauss' structuralism occurs in archaeology when researchers can demonstrate that the same themes exist among many different types of data in the same geographical and temporal context (Hodder and Hutson 2003:51). For example, a land and sea dichotomy exists throughout precontact and historic Inuit culture, and this omnipresence provides some validity for the focus on this binary opposition in analyses of material culture (McGhee 1977; Søby 1969:45).

Another application of structuralism involves reading items of material cultural as signifiers of a system of meaning, in much the same way that words signify systems of meaning in texts (Barthes 1972; Olsen 1990). By considering archaeological landscapes as the material construction of messages, archaeologists are able to look for meaning by deconstructively reading the associations between features and artefacts (Layton 2006:38). For example, by relating the spatial placement of artefacts to what is known of the structure of architectural features or properties of raw materials or social relations among cultural members, archaeologists can interpret the interconnectedness of material culture.

Subjectivity also enters into the processes of reading material culture as text. There are no criteria for deciding what connections to draw between artefacts or features, no criteria for deciding in what order they should be read, and for the more abstract

connections, no way of knowing which readings are only possible and which are likely to be correct (Layton 2006:40). Unlike the case with Lévi-Strauss' method, however, archaeologists do not perceive this as a problem. The aim of these readings is not to create a structured 'true' reading of the material culture, but instead to expose the openness and plurality of the text (Olsen 1990:198). It is possible to have several legitimate readings of the same cultural items.

In sum, the same general mental structures formed all items of material culture created by a particular group of people, and therefore technological, economic, social and ideological realms of society are all interconnected to some degree at the level of culture. Whether to look for structural themes that are inherent in the thought patterns of a given culture, particularly in the form of binary oppositions, or to read the material remains of a culture as fluid signifiers of meaning depends upon the type of materials being analysed and the intentions of the author. For the present analysis involving the relationship between animals and other aspects of precontact Inuit culture, both structuralist methods will be employed, as both can provide insight into the connections between faunal remains, space and mythology.

2.5 Conclusions

Ethnographic records of historic Inuit demonstrate intensive, complex relationships with locally available animals, which were likely shared by their precontact Inuit ancestors. They encountered animals in all areas of their culture, including the economic, spiritual, technological and social realms. This omnipresence of animals contrasts greatly with the degree to which animals exist in the culture of the

archaeologists who collect, analyse, and interpret faunal remains and other items of material culture. In fact, by identifying the differences in worldview between the precontact Inuit living in remote arctic environments and archaeologists living in heavily populated cities, researchers could formulate research questions that examine the implications of these differences for the interpretation of archaeological materials. By using some of the principles of ethnoscience and structuralism, which rely on the capacity of the human mind to structure order from chaos in a systematic way, the interrelatedness of material culture and the natural world may be more easily discerned.

Chapter 3

Background and Context

3.1 Introduction

This chapter is concerned with previous research relating to prehistoric classification systems, the precontact Inuit culture, northern Labrador, and Nachvak Fiord, and the degree to which this research influenced and enabled the current analysis of faunal remains and myth. Few researchers have attempted an analysis of the ways that people who lived before regular contact with Europeans classified animals. The first section of this chapter reviews those few attempts. The second section reviews the history and prehistory of the Inuit culture, particularly as it pertains to northern Labrador and vicinity. The third section reviews previous archaeological research conducted in northern Labrador. Archaeologists thoroughly surveyed this region during the 1970s, and test-pitted or excavated many precontact Inuit sites (Kaplan 1983). The sites of Nachvak Village (IgCx-3) and Kongu (IgCv-7) are introduced in detail in the final section.

3.2 Prehistoric Animal Classification Systems

To date, most zooarchaeological studies have focused on topics such as ancient diet, the logistics of animal procurement strategies and the identification of palaeoenvironmental conditions (Reitz and Wing 1999). From ethnographic sources and direct historical data, we know that animals also played large roles in many social and ideological aspects of culture (e.g. Boas 1907; Hawkes 1916; Hudson 1976; Rasmussen 1929, 1930a, 1930b, 1931; Walker 1989). Using information contained in ethnographic sources in conjunction with structured associations perceived to exist between faunal

remains and animal effigy pipes, two researchers have reconstructed animal classification schemes potentially used by the Woodland and Mississippian peoples of Illinois and Ohio (DeBoer 1997; Holt 1996). These analyses were highly influential in formulating the current project, and so are described in more detail below.

Holt (1996) compared the relative frequencies of faunal remains recovered from Late Woodland, Emergent Mississippian and Mississippian sites in Illinois to the frequencies of animals depicted on effigy pipes dating to the same periods in Ohio. She used statistical measures to test the strength of correlations between the relative frequencies of bones and animal depictions, and in so doing concluded that, in general, those animals depicted on effigy pipes were not the same as those procured for subsistence (Holt 1996:104). She used the frequencies of animals represented by the bones and effigies, separately and together and in conjunction with regional ethnographies, to derive a taxonomy potentially utilised during the Woodland and Mississippian periods (Holt 1996:100).

There is one instructive problem with Holt's analysis. The taxonomy defined by Holt reflects more of her worldview than it does that of the Woodland and Mississippian peoples. Defining two of the seven taxonomic categories as 'small-medium mammals' and 'birds' suggests that there were not enough data on which to build an all-encompassing taxonomy, and so Holt had to supplement the derived taxonomy with categories from her own classification system (Holt 1996:100). Holt's taxonomy might have been more original if she had incorporated other forms of data into her analysis, such as spatial analyses, that would have yielded more information about how the

Woodland and Mississippian peoples thought about animals.

DeBoer (1997:236) examined the distribution and style of major Hopewellian earthworks in Ohio and deduced that tripartition was a significant, governing motif for the Ohio Hopewell. With tripartition in mind, he examined the same animal effigy pipes that Holt (1996) did and found that the imagery of each effigy was connected to the natural realms of sky, water or earth, or a combination of these (DeBoer 1997:236). For example, the heron eating a fish was connected to both sky and water (DeBoer 1997:236). DeBoer (1997:237) grouped the effigies based on zoomorphic imagery and common zoological knowledge as belonging to one or two of the three realms, with those animals within a group plausibly representing a class of related animals in the Hopewellian classification scheme. For example, the earth class includes bears, wild canids, dogs, wildcats, elk and rattlesnakes (DeBoer 1997:237).

DeBoer's analysis successfully derived an animal classification scheme that plausibly reflects the worldview of the Ohio Hopewell peoples and that is influenced by DeBoer's own views as little as possible. He grouped the effigies based on their intrinsic characteristics, general zoological knowledge, and ethnographic information, where appropriate. His analysis reveals that by using multiple lines of archaeological inquiry, archaeologists can hypothetically discern the structure of a prehistoric taxonomic system, which could lead to further zooarchaeological inferences. Where ambiguities exist, such as when interpreting the actions of animals on the effigy pipes, where the animal is eating something or perhaps swimming, diving or perching rather than standing still, an analyst would necessarily need to use aspects of their own experiences and cultural perceptions

to interpret the context. Even a pipe depicting a sitting frog may or may not reflect both land and water, and thus it is possible that different analysts would develop different schemes, even when basing their classifications on the intrinsic properties of the pipes. In general, however, such a method seeks to remove the cultural biases of the analyst as much as possible.

Considering the wealth of ethnographic and archaeological data relating to precontact Inuit relationships with animals, a similar methodology to that of Holt and DeBoer should reveal aspects of their animal classification schemes. Based on excavations, archaeologists have reconstructed much of the subsistence regime of the Labrador Inuit, both before and after the arrival of Moravian missionaries and Hudson's Bay Company traders in the eighteenth century (Fitzhugh 1994; Kaplan 1985; Loring 1998; Woollett 2003). As well, regional ethnographies exist that not only describe physical interactions between historic Inuit and locally available animals, but also ideological interactions in the form of animal myths (Hawkes 1916). Aspects of the ancestral Labrador Inuit culture are reviewed next.

3.3 The Precontact Labrador Inuit (Thule)

The ancestors of the Inuit are commonly known as the Thule, an ancient Greek word meaning 'north' that was derived from the name of an early Greenlandic trading post (Maxwell 1985:247). There are important cultural differences that exist between the Inuit of today, the Inuit at the time of contact, and the Inuit of the more distant past, so it is appropriate to articulate formal names to distinguish among these cultural periods. It is also necessary to remember, however, that regardless of name, these people are members

of a single cultural group that has changed along a continuum of time. This is inherently more difficult to do when the terms 'Inuit' and 'Thule' are employed; the tendency is to erroneously think of them as two different cultures. Thus, for this thesis, the Inuit of today are referred to as 'Inuit', the Inuit at the time of contact are 'historic Inuit' and the Inuit of the past are 'precontact Inuit'.

Northern Labrador was one of the last places inhabited by the precontact Inuit of the Eastern Arctic, although there is some debate as to when initial occupation occurred. The most widely accepted opinion is that even during the expansive migrations between the 12th and 14th centuries, when the precontact Inuit were migrating east after leaving Alaska in AD 1000, they had not yet moved to Labrador, Québec or the northwestern islands of the Arctic Archipelago (Maxwell 1985:261). It was not until around AD 1400, with the onset of the cold Neo-Boreal climatic episode, that the first precontact Inuit peoples migrated to northern Labrador from Baffin Island or from northern Québec (Schledermann 1971:69). Other researchers challenge this opinion based on studies of radiocarbon dates, and suggest that the precontact Inuit actually began their initial migrations into the Canadian Arctic in the 13th century, and likely migrated to Labrador during the fourteenth century (McGhee 2000, 2009). Regardless of the actual timing of the migration of the precontact Inuit to Labrador, it was not long after that Europeans became active with the fishery along the coast during the 16th century. In 1752, Moravian missionaries began travelling to Labrador to attempt to convert the Inuit to Christianity, and in 1771 they established their first mission at Nain (Kennedy 1985:266). Whereas the Inuit living in the Central Arctic did not have significant contact with

Europeans until after the disappearance of the Franklin expedition in 1848, when British ships came steadily in search of survivors, those in Labrador had only arrived about 100 years before a permanent European presence arrived (Maxwell 1985:310). The Moravians established missions along the Labrador coast from the late 18th century and the Hudson's Bay Company (HBC) opened trading posts throughout the 19th century, sometimes alongside the missions. These two conglomerates competed with each other for trade opportunities with the Inuit, thereby creating a durable profit-based economy amongst them (Kennedy 1985:269).

Before the arrival of the Europeans, the precontact Inuit of Labrador, as in all other areas of their geographical distribution, were mobile hunter-fisher-gatherers who structured their seasonal round around the acquisition of key prey species. In late autumn, winter and early spring, they inhabited semi-subterranean dwellings made of sod, stone, whale bone and driftwood (Schledermann 1976:27). The number of people inhabiting a site at a given time was variable, but perhaps 20-50 people comprised a settlement of four to six houses (Park 1997:276). Each house contained at least one raised sleeping platform, an interior kitchen area, paved floors, an entrance tunnel and stands for soapstone lamps that burned oil to provide heat and light (Kaplan 1985:49). The winter settlements were sometimes situated in the vicinity of polynyas (permanent areas of open water) where hunters could procure an assortment of marine mammals, but they also hunted ringed seals at their breathing holes in the fast ice (Kaplan 1985:49). In summer, when the snow had melted, the spring camps split up and families, now living in sealskin tents, moved along the coast and inland rivers to procure fish, birds and other

game (Graburn and Strong 1973:154). As autumn approached, families moved their tents inland to procure fish and caribou, where they remained until they had to return to the large, sod winter houses (Graburn and Strong 1973:155). The technology of the precontact Inuit was well suited for seasonal movements and the acquisition of a range of prey species. It included dogs, sleds, kayaks, umiaks, harpoons, bows and arrows, leisters, bowdrills, ground stone tools (such as adzes, drill bits, assorted blades and whetstones), soapstone vessels, snow goggles, and numerous other objects made of stone, bone, wood, baleen, whale bone, antler, ivory, skin, snow and ice (Maxwell 1985).

Beginning in the 18th century, changes were made to the ancestral lifestyle that reflected the influence of Europeans, particularly the Moravian missionaries, HBC, and independent traders. Attracted by European items of technology, including guns and metal knives, and in accordance with Moravian insistence, many Inuit began to settle for parts of the year in the vicinity of the missions, and adopt the values of Christianity (Kennedy 1985:267). Winter houses changed from the semi-subterranean sod houses that were heated by marine mammal oil to wooden houses that were heated by wood stoves (Kennedy 1985:271). Some boats were no longer made of skin, but instead of wood (Maxwell 1985:310). The Inuit were hired to acquire resources that could be sold or traded to Europeans, which resulted in the Inuit being unable to maintain some of their traditional hunting practices (Kennedy 1985:270). They became dependent on the missions and trading posts to provide goods. Due to rising expenses, the Moravians ceased trading with the Inuit in 1926, as did the HBC in 1942 (Taylor 1977). During the 1950's, the Canadian government relocated the Inuit to Hopedale and Nain, and to other

southerly communities (Brice-Bennett 1977:112). This thesis concerns the range of time before and shortly after the initiation of European settlement, between AD 1500 and AD 1850.

3.4 Archaeology in Northern Labrador

The first archaeological exploration of precontact Inuit sites in northern Labrador, which is considered here to be the regions north of Nain, began with William Duncan Strong, who examined subterranean sod house sites in the Nain and Hopedale regions between 1927 and 1928 (Kaplan: 1983:13). Other early projects included Junius Bird in 1934, Douglas Leechman in 1935 and 1936, Vaino Tanner in 1937 and 1939, and Charles Elton in 1942, where the research focussed on earlier Palaeoeskimo cultures or was conducted in central Labrador or was geographical or biological in nature (Kaplan 1983). More archaeology relating to precontact Inuit occupations was conducted in the 1960s and 1970s, with J. Garth Taylor conducting a survey of the Nain and Okak regions in 1966, Patrick Plumet locating and mapping burial sites along the coast of northern Labrador in 1967, and Steven L. Cox surveying the Okak region in 1974 and 1975 (Kaplan 1983).

The archaeological projects mentioned above were all relatively short-term. There have been two major surveys of areas within northern Labrador. The first was between 1969 and 1971 and involved the survey and excavation of Maritime Archaic, Pre-Dorset, Dorset, precontact Inuit and historic sites in and around Saglek Fiord (Tuck 1975). This project was divided into three components – Palaeoeskimo sites, Inuit sites and human burials – with each component being principally investigated by a different

person (Tuck 1975:iv). Schledermann (1971) investigated the Inuit sites, which involved the testing of 56 ancestral and historic Inuit winter houses. His examination of these house styles, and associated artefacts, represents the first comparative analysis of temporally defined Inuit assemblages in northern Labrador.

The second major survey was in 1977 and 1978 and was much larger in scale. By conducting ground and boat surveys between Nain and the northern tip of Labrador, the Smithsonian Institution's Torngat Archaeological Project (TAP) located approximately 350 sites of various cultural groups (Fitzhugh 1980: 585). TAP surveyed large bay-fiord complexes (Hebron, Saglek, Seven Islands Bay), deep fiords without bays (Ramah, Nachvak), small inlets/bays/areas of open coast, island zones (Home Islands, Killinek, Button Islands), and near-interior transportation routes leading toward Ungava Bay (Fitzhugh 1980:591). While most sites were described, photographed and randomly test-pitted, some sites were strategically test-pitted and some were excavated to obtain details on structural features, dating, and faunal remains (Fitzhugh 1980:591). The TAP surveys gathered more data on ancestral and historic Labrador Inuit settlement than for any other cultural group (Fitzhugh 1980:601). They tested 30 winter villages and many other special-purpose/seasonal sites, and using the information collected from these sites, concluded that the precontact Inuit arrived in Labrador shortly after AD 1400 and lasted about 100 years before changing to accommodate the European presence (Fitzhugh 1980:601). Aspects of the entire prehistory and history of the Labrador Inuit were investigated during this survey, which allowed for a thorough synthesis of Inuit occupations and socio-economic change throughout northern Labrador during the contact

period (Kaplan 1980, 1985).

Since the TAP surveys, many researchers have examined the prehistory and history of the Labrador Inuit (Auger 1991; Cabak and Loring 2000; Fitzhugh 1994; Kaplan 1980, 1983, 1985; Kaplan and Woollett 2000; Loring 1998; Taylor 1988; Whitridge 2008; Woollett 2003, 2007). For many of these researchers, a topic of major interest has been the early contact period, during which the Labrador Inuit selectively adopted some aspects of European economics and lifestyle to the exclusion of others. Archaeologists have not extensively excavated many precontact sites, which limits the potential for regional intersite comparisons (Whitridge 2005:4). The project undertaken here focuses on recent excavations of two sites in Nachvak Fiord. Nachvak Fiord consists of a long and narrow waterway that divides into Tallek and Tasiuyak Arms, and is surrounded by the majestic Torngat Mountains. According to Inuit mythology, Nachvak is home to Torngasuk, the keeper of the game and controller of weather (Kaplan 1983:656; Whitridge 2004b:57).

3.5 Archaeology in Nachvak Fiord

Nachvak Fiord was extensively surveyed during the TAP surveys. Figure 3.1 shows the sites located to date within the fiord and outer bays by TAP and later projects. These sites range in date and cultural affinity from the northernmost Maritime Archaic component (IgCx-11) to the site of the Nachvak HBC outpost (IgCx-2), which operated between 1868 and 1905 (Treude 1974:46).

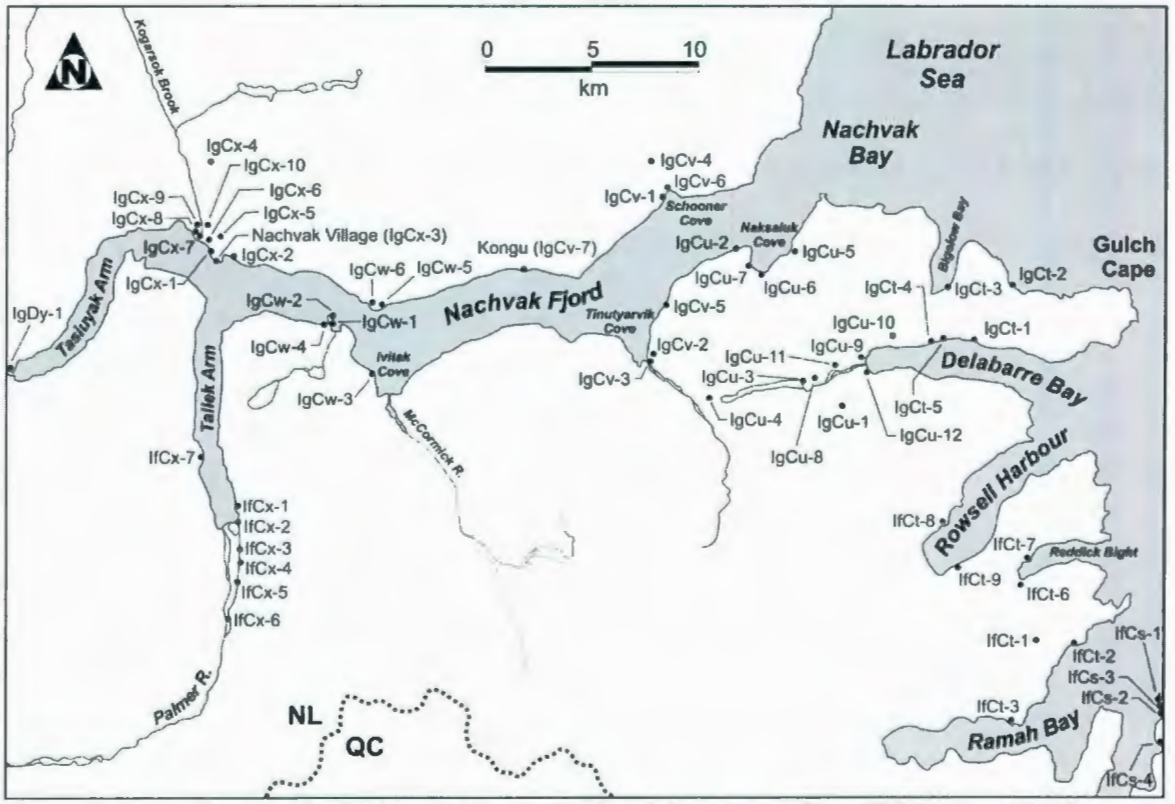


Figure 3.1: Archaeological Sites in Nachvak Fiord (reprinted from Whitridge 2006).

The project undertaken here is a small part of a long-term survey and excavation project. The main goal of the larger project was to generate substantial artefactual, ecofactual and architectural data on the precontact Inuit that would help to complete the culture history of Labrador, and by association, the Eastern Arctic (Whitridge 2004b:5). Nachvak Fiord was chosen as the study region because it was one of the larger core settlement and harvesting areas for early historic Inuit groups, and also because its extension far inland offers the potential to investigate the relationship between the archaeologically-unexplored interior and the coast (Whitridge 2004b:6). Within the fiord, crews revisited many of the sites recorded by TAP with the goal of verifying precontact Inuit occupations at these spots, and also locating some that had not been

previously found. The site of Nachvak Village (IgCx-3) was chosen as the focus of excavations for the project because the TAP test-pits determined that it was mostly or exclusively a precontact site, occupied before the arrival of missionaries (Whitridge 2004b:8). The investigations of this site are described in detail below.

3.5.1 *Nachvak Village*

The site of Nachvak Village (IgCx-3) is a substantial winter village containing about 13 sod house depressions that date to approximately AD 1500 to 1700. It is situated on the north side of Nachvak Fiord, on a terrace approximately 15 metres above sea level (Whitridge 2004b:14). Tall grasses and willows (*Salix sp.*) grow all over the terrace (Whitridge 2004b:18). On the north side of the terrace is the steep, rocky slope of a hill that ascends to a wide, level apex, and which steeply descends on the other side towards a grassy valley containing some freshwater ponds. The north slope is mainly composed of a single mass of rock with interspersed vegetation, however a talus-like slope exists in some parts. On the south side of the site, the terrace slopes off steeply toward the sea. For the most part, the south slope consists of large, closely spaced boulders and rock outcrops, however the easternmost part of this slope is covered with dense grasses and occasional boulders. While the water meets the land at the mass of boulders in most parts, a small gravel beach occurs at the east end of the shore, from which boats can be launched. The site sits at the junction of the Tallek and Tasiuyak Arms adjacent to a polynya, and it is this area of open water that likely attracted the precontact Inuit and the plethora of sea mammals to winter in this inner area of the fiord (Kaplan 1983:134).

Excavations at Nachvak Village extended over four summer field seasons, from 2003-2006. During these seasons, four houses were excavated and two midden areas were sampled. Figure 3.2 shows the site of Nachvak Village, and the relative locations of the houses. House 2 (H2) was excavated in 2003 and it was chosen for several reasons (Whitridge 2004b:16). First, TAP had placed only one 50 cm by 50 cm shallow test pit in the eastern lobe of the house, thereby leaving the house virtually intact. Second, the abundance of surface whale bone suggested a durability related to repeated occupation, which indicated that preservation would be good. Third, the visible architecture demonstrated that substantial differences existed in the construction of the two lobes, with the east one consisting of turf and the north one of stone and whale bone.

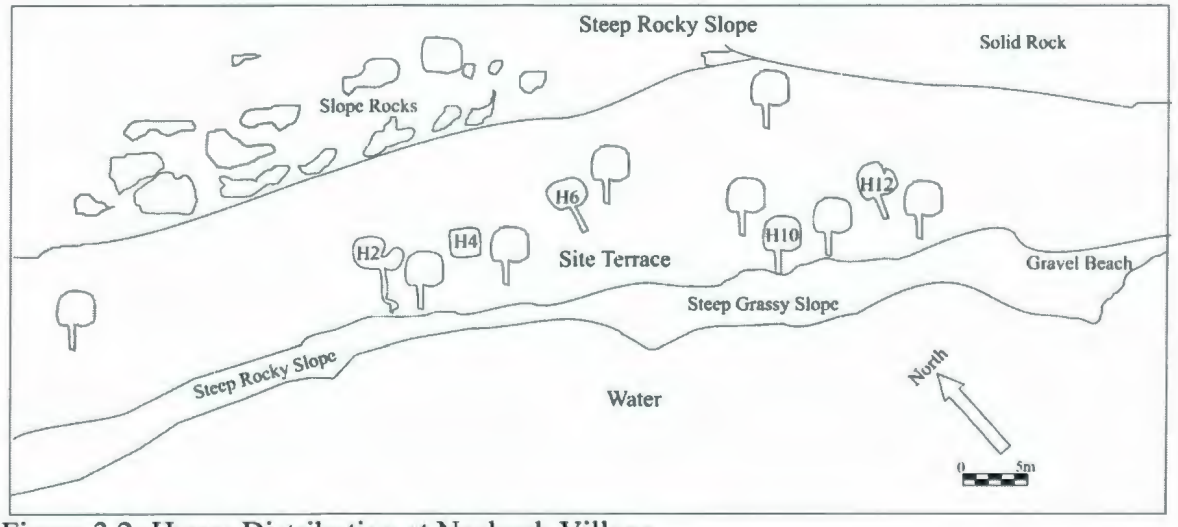


Figure 3.2: House Distribution at Nachvak Village

The 2003 field season is thoroughly documented by Whitridge (2004b). The excavation of H2 consisted of 44 1m by 1m units, which covered most of the interior parts of the house and entrance tunnel. Trowels were used to remove the surface sod (Level 1), which contained poorly preserved organic materials and Ramah chert flakes.

Excavations of the fill layers (Level 2) proceeded in 10cm levels until the structural elements of the house were reached. The floor pavements (Level 3) were mapped and removed, and excavation continued to sterile soil. Permafrost was encountered at 25-40cm in the area where the entrance tunnel meets the living area, and around the floor pavements in the centre of each living compartment. Excavators piece-plotted artefacts and charcoal and collected all other materials (faunal remains, lithic flakes, wood) by unit and level. All soil removed was screened through ¼" mesh, and this soil was backfilled into the house depression once excavations were complete.

Whitridge (2004b:20-21) interprets H2 as existing relatively late in the history of Nachvak Village. It was initially constructed as a sod, stone and whale bone house with mirror-image living compartments and a shared entrance tunnel. At some point, either before or after the village was abandoned, the north lobe was refurbished with heightened walls, perhaps with stones removed from the walls of the east lobe. The house was abandoned shortly after European goods became available, as there was a low frequency and narrow range of European items.

Excavations of House 6 (H6) and House 12 (H12) were conducted concurrently, and were begun in 2004 and completed in 2005. These houses were chosen because of their surface architecture, as one of the major goals of the project was to document the inter-house variability of precontact Inuit households (Whitridge 2005:6). In H6, TAP had placed a 1m by 2m trench at the junction of the entrance tunnel and midden, where an abundance of bowhead whale remains was recovered (Kaplan 1983:686). In H12, TAP placed two test pits in the house depression, the first in the centre and the second to

the south of the entrance tunnel, and a 2m by 50cm trench was placed in the midden area to the west of the entrance tunnel opening (Kaplan 1983:689).

The 2004 field season is documented by Whitridge (2005) and the 2005 field season is documented by Whitridge (2006). The excavation of H6 consisted of 30 1m by 1m units, which covered the architecture of the entire house. The excavation of H12 consisted of 44 1m by 1m units. The entire 2004 field season at Nachvak Village was spent removing the sod and fill layers from both houses. The sod layer (Level 1) was about 10-15 cm for each house. Fill layers (Level 2) were removed by trowel in 10cm sublevels until architectural elements were exposed and were screen through ¼" mesh. All visible architectural structures were mapped before tarps were laid upon the unexcavated layers, and the houses were backfilled. Beginning in 2005, the walls, sleeping platform edges, and the entrance tunnels were excavated by arbitrary 10cm levels within the natural stratigraphy, until sterile soil was reached.

House 6 consisted of an entrance tunnel, which joined the house through an arch with an intact lintel stone, and interior floor pavements, on which stood a raised sleeping platform at the back, a lamp stand to the west and a storage niche to the southeast. Whitridge (2005:12) suggests that H6 was abandoned earlier than H2, perhaps in the early 17th century, based on the extreme rarity of European objects. House 12 consisted of a long entrance tunnel that met a house interior containing a north lobe and an east lobe, each of which contained a sleeping platform and a lamp stand, and which were separated by another lamp stand. Whitridge (2005:12) suggests that the abandonment of H12 was between that of H6 and H2, perhaps in the mid-17th century, based on the

relative proportions of European goods.

The 2006 field season had two main goals: to excavate House 4 (H4) and to sample midden areas around H2 and H10. In H10, TAP had placed one 1m by 1m test pit in the entrance tunnel, thus leaving this house and midden area almost intact.

Excavations at H4 consisted of 24 excavation units that were intended to expose all of the interior architecture and entrance tunnel. This house was similar in structure to H6, in that only one sleeping platform appeared to exist at the back of the house and was abutted by a paved floor. Much of the floor was covered in sheets of baleen. The presumed entrance tunnel area produced an abundance of material culture, including most of the faunal remains recovered from this house, but no door could be discerned in this area. The sod (Level 1) and fill layers (Level 2) were removed by trowel and screen through ¼" mesh. All artefacts were piece-plotted and all unworked material remains were collected by unit and level. At the end of the excavation season, the architecture of the house interior had been exposed, but the entrance configuration had not been determined.

The H2 Midden was located close to the opening of the entrance tunnel. Four 1m by 1m excavation units were opened and these produced a sparse amount of material culture. About half as many faunal remains were recovered from H2 Midden as were recovered from H10 Midden. H10 Midden was located near the opening of the entrance tunnel. Four 1m by 1m excavation units were opened, and produced a small amount of material culture. Although the excavation units in both of the midden areas were relatively shallow, lenses of frozen ground were encountered in the H10 units.

3.5.2 *Kongu*

The site of Kongu (IgCv-7) was chosen as a site that could provide information on the early communal house phase in Nachvak Fiord, and which could have been occupied after Nachvak Village was abandoned, representing a shift in winter settlement from the inner to the middle fiord (Whitridge 2004b:62). TAP had not located this site. It is a winter village site consisting of at least six large, rectangular, communal houses that date to as early as the 18th century, and at least one circular house depression and two possible rectangular houses (Whitridge 2005:13). It is located on the north shore of Nachvak Fiord, in about the middle of the fiord, on a narrow, grassy terrace about two metres above sea level (Whitridge 2004b:61). To the north, it is surrounded by tall, steep hills covered in short vegetation and rocks. Amongst these hills are two tall waterfalls, one on either side of the site, whose streams flow out into the sea. A gravel beach borders the site on the southern shore.

Excavations at Kongu occurred over two field seasons, from 2004 to 2005, in which four midden areas were explored. Figure 3.3 shows a map of the site and the locations of the features.

The 2004 field season is documented by Whitridge (2005) and the 2005 season is documented by Whitridge (2006). In 2004, the excavation of three 1m by 3m trenches (East Trench, West Trench and Centre Trench) was begun. West Trench was placed outside the entrance tunnel of the westernmost house, which was close to the rear of a second house. This trench was completed during the 2004 season, and produced many European and organic remains, and revealed a stone wall running through the trench.

Centre Trench was placed adjacent to the entrance tunnel of the circular house depression at the north end of the terrace, which was intermediate between the eastern and western clusters of communal houses. It was hoped that this trench would produce evidence of an earlier occupation at Kongu. East Trench was placed adjacent to the mouth of the entrance tunnel of the largest dwelling. This trench was the deepest and most artefact-dense trench, and produced many European materials. Only the first two 1m by 1m units were completed during the 2004 season.

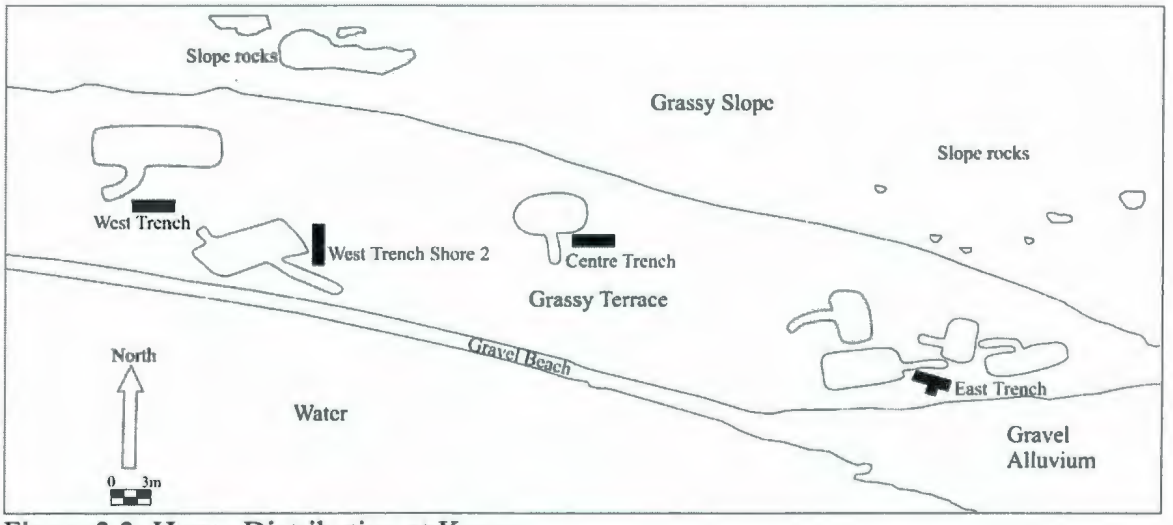


Figure 3.3: House Distribution at Kongu

During the 2005 season, East Trench was expanded by two more 1m by 1m units, with all but the fifth unit being excavated to sterile soil by the end of the season, Centre Trench was completed, and a new 1m by 3m trench, West Shore Trench 2 (WST2), was excavated. East Trench consisted of approximately one metre of rich cultural deposits overlaying sterile beach gravel. Unit 3, which had been started in 2004, was completed, as was the newly begun Unit 4, but Unit 5 was only excavated to a depth of 50 cm. Interestingly, excavations at Centre Trench revealed a floor at the lowest level,

suggesting that this midden unit may actually have been part of a structure at an earlier date (Whitridge 2006:1). In association with the CT floor were large boulders, bowhead whale elements, a beluga skull, and almost complete bear elements. Whitridge (2006:15) suggests that these large items may have been rapidly and intentionally deposited onto the floor in an attempt to conceal this structure, a potential festival house or ceremonial dwelling, during the 19th century. The WST2 trench was placed to the south of West Trench, and was excavated with the intention that the material culture recovered would supplement the scant material acquired from West Trench. Excavations almost reached sterile soil in WST2, but tarps had to be laid and the trench had to be backfilled before this occurred. This trench produced an enormous number of Inuit and 19th century European remains, and the types of European materials suggests that the household responsible for this midden had access to better European materials than did those in other midden areas.

For all midden areas, after the sod (Level 1) was removed, excavations proceeded in arbitrary 10cm levels throughout Level 2. All soil was removed with a trowel and screened through ¼" mesh. All artefacts were piece-plotted, and unworked, organic remains were collected by unit and level. An analysis of ceramic artefacts demonstrates that most were manufactured earlier than the mid-19th century, and since no ceramics were recovered in the lowest levels of the trenches, it is likely that Kongu was occupied during the first half of the 19th century (Whitridge 2005:15).

3.6 Conclusions

The goal of this chapter was to introduce the previous research that influenced

and aided the current research project. Such literature included the attempts by previous researchers to outline prehistoric animal classification systems. These attempts are very instructive for delineating a methodology for elucidating prehistoric classification systems, which are easier to discuss theoretically than they are to reconstruct practically.

Also discussed in this chapter were the previous archaeological projects conducted in northern Labrador, and in Nachvak Fiord. Relatively few investigations have addressed the archaeology of the precontact Inuit in Labrador, particularly in northern Labrador. General discussions of the movements of the precontact Inuit throughout the Eastern Arctic do not usually include this region. Previous work undertaken by the Torngat Archaeological Project in 1977 and 1978 formulated the basis for much of the work currently being conducted in northern Labrador, and in particular, in Nachvak Fiord.

Finally, the sites of Nachvak Village and Kongu were introduced and the excavations undertaken as part of the current project were described. These sites provide information on the settlement and subsistence of ancestral and historic Inuit peoples from approximately AD 1500 to AD 1850.

Chapter 4

The Faunal Assemblages

4.1 Introduction

This chapter discusses the faunal assemblages recovered from Nachvak Village and Kongu. Excavators collected all faunal material encountered during the excavation of four houses (H2, H4, H6, H12) and two middens (H2 Midden, H10 Midden) at Nachvak Village. Of the houses, House 4 was the only one not completely excavated: the layers beneath the floor paving stones remain unexcavated and the location of the entrance tunnel remains to be determined. Regardless of degree of excavation, the faunal remains from each house were sampled using a random number table whereby each number generated corresponded to an excavation unit number. The goal was to sample 25% of the excavation units for each of the four houses and to analyse all of the faunal remains recovered within the sampled units. For some houses, the 25% sample rendered less than 500 identifiable faunal specimens, a number selected as the desired minimum number of identifiable specimens for the sample to be considered representative of the total house population. This number was selected after conducting a pilot study into the taxonomic richness of the Nachvak Village faunal assemblages using the H2 material. Figure 4.1 shows the taxonomic richness for H2 as calculated after analysing the fauna from 25% of the excavated units. This figure shows that the majority of genera that existed in the faunal assemblage had occurred at least once by the time 100 specimens were identified, but that new genera continued to appear even after 400 specimens had been identified (Grayson 1984). Thus, by acquiring 500 identifiable specimens, it was

hoped that the full range of fauna exploited at Nachvak Village would likely be represented by at least one specimen in the faunal assemblages, and the relative frequencies of taxa in the samples would be representative of the house and midden assemblages as a whole.

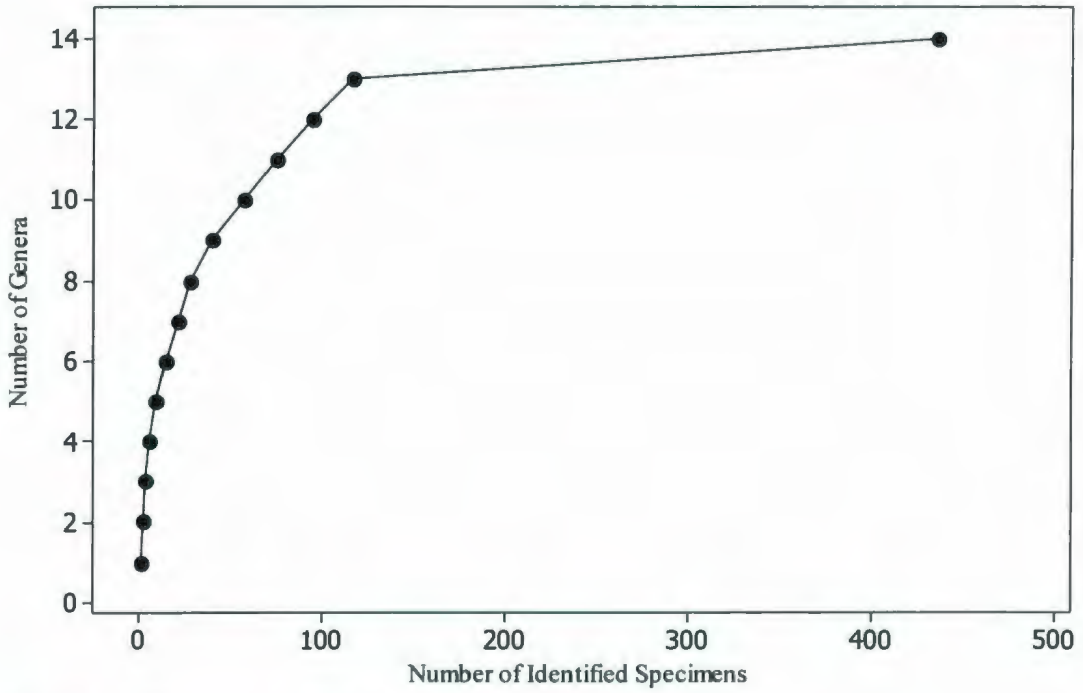


Figure 4.1: Taxonomic Richness for House 2

In the cases where 500 identifiable specimens were not reached within 25% of the excavated units, more excavation unit numbers were generated from the random number table and included in the analysis until each sample consisted of a minimum of 500 identifiable specimens. The only exception to this was H4, where there were so few bones of any kind recovered that it became obvious that there would never be 500 identifiable specimens, even with the analysis of every faunal specimen recovered. In addition, the majority of H4 faunal remains used in the analysis were recovered from an

area initially posited to be the entrance tunnel; the lack of structural elements suggests that this may not be the case, and thus the faunal remains analysed from this region may not be directly associated with the house interior deposits. Further excavations of H4 will clarify any ambiguity regarding house architecture, and future faunal remains can be combined and compared with those analysed here.

Included in the analysis were all faunal materials from the two middens, each of which consisted of an area of $4m^2$. These midden areas had a low density of faunal remains and both have a total number of identified faunal elements that is much less than 500. While the midden assemblages could be combined in an effort to thwart any effects of small sample size on statistical analyses, they are kept separate for the current calculations to show the differences between these features

Excavators also collected all faunal material encountered during the sampling of four middens (East Trench, Centre Trench, West Trench, West Trench Shore 2) at Kongu. Each of these consists of a 3m by 1m trench with the exception of East Trench, which was expanded from the original 3m by 1m trench to include an area of $5m^2$. These trenches were all very dense in bone and other materials; there was not enough time to analyse all of the faunal remains collected. Included in the analysis were all faunal remains recovered from West Trench, Centre Trench, and the first three units of East Trench. In addition to there being a greater number of faunal remains recovered from Kongu than from Nachvak Village, the preservation was also better, and so the total number of identifiable bones from each trench easily exceeded the minimum of 500.

4.2 Identification Methodology

The identification process for all the faunal remains was the same. Following Grayson (1984:16), 'element' refers to a complete bone or tooth in the skeleton of an animal while 'specimen' refers to a complete or incomplete bone or tooth from an archaeological site. I sorted the specimens within each field bag into generalised taxa, such as caribou, seal, dog, fox, whale, etc., and within each taxon, I grouped like elements together, such as humeri, radii, femora, etc. Next, I systematically compared the archaeological specimens to the comparative ones in the faunal collection. Once I found a match, I used Microsoft Access to record the provenience information, the specimen identification and the specimen description in a database. The provenience information I transcribed from what the excavator had written on the field bag. The specimen identification included the Class designation (e.g. Mammal), the common name of the species (e.g. Ringed seal), the name of the element (e.g. Mandible), and the number of specimens (e.g. 1). The specimen description included the body side of the element (e.g. Left), the anatomical orientation (e.g. Anterior), the proportion present (e.g. 0.6), the age of the specimen (e.g. Immature), the sex of the specimen (e.g. Indeterminate), the presence of natural or cultural modifications, and any additional comments relating to the appearance of the specimen. The proportion present was an estimate that ranged from 0.1 (10% complete) to 1.0 (100% complete). The methods of identifying age, sex and natural or cultural modifications are discussed below.

4.2.1 *Ageing*

The identification of specimen age was based on the appearance of the cortex, the

degree of epiphyseal or sutural fusion, degree of tooth eruption and, infrequently, size. There were five age categories used that corresponded to the relative age of the specimen: juvenile, immature, subadult, adult, and immature+. A juvenile specimen had completely detached epiphyses and sutures, had the rough, porous cortex that is indicative of developing bone, and had poor feature development. This category also included deciduous teeth. Any specimens that were likely to be foetal or neonatal were categorised as juvenile, and a further description of their age was place in the Additional Comments field of the database. An immature specimen had completely detached epiphyses and sutures but had a dense cortex that was indicative of some maturity and had complete or almost complete feature development. A subadult specimen was one in which epiphyseal fusion was occurring around the time of death but which was not yet complete, as evidenced by the clearly visible lines of fusion, or where one epiphysis had fused while the other had not. An adult specimen was one where epiphyseal fusion had completely occurred and where the lines of fusion were indiscernible. An immature+ specimen was one which did not have a fusion area associated with it, such as a fragment of a long bone shaft, but which had a mature cortex, and thus could not be a juvenile specimen. Immature+ specimens were those that could be immature, subadult or adult in age. The majority of the long bone fragments in the assemblages that were identified as immature+ were most likely immature elements, based on the relative lengths and widths of the shaft.

This age classification scheme was used for all taxa, regardless of the degree to which the skeletal age corresponded with chronological age. Regarding seals, there is a

large discrepancy between the skeletal and chronological age, whereby most elements fuse much later in life than they do in terrestrial mammals (Storå 2000:222). This results in an overestimation of the relative abundance of immature seal individuals, where many of the individuals classified as immature may have the same (or greater) chronological age as the terrestrial individuals classified as adult. Thus, that while the age of seal bones is examined in relation to the remains of other taxa recovered, the actual age at death must be determined using other methods, such as those discussed below.

The most common way to estimate the actual age at death of the animals in the assemblage is to correlate the stage of tooth eruption with actual age, or by counting the annual layers of cementum deposited on adult-aged canines to determine season of death (Reitz and Wing 1999). Another method involves comparing the skeletal ages of each fused or unfused element to the known chronological age at which such a stage of epiphyseal fusion can be expected in that species (Storå 2000). For example, in a ringed seal's fifth year of life, the proximal humerus is the first to fuse, then the proximal ulna, then the proximal phalanges, distal femur and proximal tibia-fibula (Storå 2000:215). Thus, knowing the relative fusion or eruption rates and the corresponding chronological age at which these fusions or eruptions occur, the age at death of each complete identified specimen can be estimated.

4.2.2 *Sexing*

The identification of sex was considered for all specimens, however it proved too ambiguous in almost all cases, and so most specimens were of 'indeterminate' sex. The sex of some bones in sexually dimorphic species can potentially be determined using size

ratios, where the analyst measures two points on one element and then compares the ratio to that of modern individuals of known sex in the comparative collection (Reitz and Wing 1999:187). Sex of some bones can also be determined morphologically. In many mammalian species, such as sheep or goats, the pelvis differs in shape between males and females (Greenfield 2002). Some male birds of the Galliformes order, which includes chickens, ptarmigan, and grouse, develop bone spurs on the tarsometatarsus, while medullary bone is characteristic of female birds prior to egg-laying (Reitz and Wing 1999:83). In mammals, sexually diagnostic traits include the presence of antlers or horns in some male ungulates and a baculum (penile bone) in male carnivores, bats, insectivores, rodents and primates, with the exception of humans (Reitz and Wing 1999:83).

Of the sexually diagnostic traits, the baculum was the only trait that was useful in the determination of sex for the Nachvak and Kongu assemblages. Both male and female caribou have antlers, and moose and deer do not occur in the study area. Information on using the pelvis to sex arctic mammals is scarce, and the pelves recovered were too incomplete to be useful even if such information did exist. Bird bone recovered tended to be either complete, making an assessment of the medullary cavity impossible without destroying the element, or else was a bone without a medullary cavity, such as a vertebra. No spurred tarsometatarses were identified.

I took almost no measurements on the specimens recovered. This was due to the majority of the faunal assemblages consisting of seal bones, where the interspecies differences in size could easily be confused with sexual dimorphism to confound the

estimation of sex. Some measurements were taken on the complete bird remains recovered to aid with their identification. Future researchers interested in the differential acquisition of a particular sex could attempt a study of the quantitative size differences of the faunal specimens, however they would likely find that the faunal remains were too heavily butchered for them to take many measurements.

4.2.3 *Other Modifications*

The faunal remains were examined macroscopically for evidence of several natural and cultural modifications (Landon 2005:7). The natural modifications consisted of carnivore and rodent gnaw marks, digestion marks, sun bleaching, root etching and general weathering. The cultural modifications consisted of burning and cut marks. For each modification that was present, a checkmark was placed in the appropriate field of the database; the column was left blank if a modification did not occur. Any modification that could not be classified into one of the above categories was described in the Additional Comments field of the database; this occurred for pathological specimens. Breakage patterns were not described unless they were particularly unusual.

Rodent gnaw marks appeared as closely spaced, perfectly parallel indentations that extended across the bone in a concentrated area (Hesse and Wapnish 1999:88). They resembled short, repetitive tick marks where the incisors scraped the bone in a manner akin to eating along a cob of corn. In some instances, the rodents gnawed deeply enough to have revealed the marrow cavity. Rodent gnaw marks were rarely observed in the faunal assemblages, despite the inundation of mice observed during excavations. This suggests that either small rodent activity did not greatly affect the condition of the faunal

remains, or that faunal preservation was too poor to observe the full effect of rodents.

Carnivore marks were among the easiest to identify and the most commonly observed. Canine puncture marks existed, usually at the proximal or distal ends of long bones, as small, circular holes, sometimes alone or in association with concentrated, broad, irregular pitting that was made by the tooth cusps (Reitz and Wing 1999:134). In some instances, carnivores had gnawed the ends of long bones to an extreme degree, obliterating species diagnostic traits. The degree and frequency of damage due to carnivore gnaw marks may reveal the extent to which carnivores, present during and after site occupation, altered the condition of the faunal remains and their spatial placement relative to the rest of the site assemblage (Marean and Bertino 1994). While carnivores had a substantial impact at both Nachvak Village and Kongu, their effects do not appear to be great enough to alter the zooarchaeological interpretations.

Evidence of digestion usually existed on an entire element, implying that the carnivore had swallowed it whole and then excreted it. Digested elements were completely covered with pits of varying sizes, shapes and depths, which were caused by the stomach acids and enzymes dissolving the bone (Reitz and Wing 1999:135). They appeared greatly distorted from their normal appearance, to the point where some that had been thoroughly chewed before consumption became an unrecognisable mass of compacted bone. Digested elements also had a slightly dark reddish colour when compared to non-digested remains, likely caused by soil staining of bone that had already been discoloured by the digestive acids (Butler and Schroeder 1998:966). The degree and frequency of digestion is another means by which the analyst could investigate the

extent that carnivore behaviour may have affected the removal or spatial displacement of bones at a site (Marean and Bertino 1994). The most frequently occurring digested specimens at Nachvak Village and Kongu were small elements of the foot, including phalanges and metapodials.

Sun bleaching occurs when a bone is exposed to the sun for long periods and turns white and more brittle as a result (Ubelaker 1997). Only a few faunal remains retrieved from the sod layers of the houses and middens had evidence of sun bleaching, which may occur on all or part of a bone, depending on the degree of exposure. The infrequency of sun bleaching at Nachvak Village and Kongu suggests that the vegetation, which was tall and thick prior to excavations, accumulated relatively rapidly after the abandonment of the sites, hindering the sun's rays from penetrating to the faunal specimens beneath. No sun-bleached bones occurred deep in the stratified deposits, suggesting the sites were not greatly disturbed prior to excavations and that the rate of bone deposition was relatively rapid.

Root etched remains tended to occur in upper stratigraphic levels where the humic acid of plant roots, or fungi associated with decomposing plant roots, leached out and made an imprint of the roots on the bone surface (Lyman 1994:375). They appeared as thin, shallow, dendritic grooves that covered all or part of the bone, and in some cases, the roots were still embedded in the bone at the time of analysis (Reitz and Wing 1999:138). The presence of root etching on internal long bone shafts, or along fracture surfaces, alludes to the relative timing of bone breakage; the bone must have fractured before the root etching, and perhaps even before deposition, in order to expose the inner

shaft to the roots (Lyman 1994:377). By knowing the relative timing of modifications, the analyst can differentiate between early and more recent bone breakage. Despite the vast amount of vegetation on the surface of both sites, little root etching was observed on the faunal remains, suggesting that the soil lacked the bacteria normally associated with prominent root etching (Fred and Haas 1919).

General weathering was a category employed to describe any specimen that was clearly modified by natural means, but for which specific processes could not be determined. Weathered bones exhibited some combination of cracking and flaking of the cortical bone, rounding of broken edges, the obliteration of bone features, and the exposure and destruction of inner cancellous bone (Behrensmeyer 1978:151). At their most minor, weathered bones were slightly cracked and flaky on their exterior surface. At their extreme, they were usually unrecognisable and so fragile that they would fracture upon being held. Whereas other researchers have used up to six stages to describe weathering, the faunal remains discussed here were recorded as either being weathered or not, as the vast majority showed no signs of weathering (Behrensmeyer 1978:151). In a few instances, it was difficult to distinguish between weathering cracks and cut marks. It became necessary to use a magnifying hand loupe and a microscope to accurately identify the modification. Particularly severe weathering was described in detail in the Additional Comments field of the database.

Burnt or calcined specimens occurred very rarely in the faunal assemblages, and in several instances burning was difficult to distinguish from intense soil staining. Burnt remains were blackened from the carbonization of organic components to a much darker

colour than the rest of the remains in the soil, while calcined remains had been exposed to much higher temperatures, ensuring complete oxidation that turned the bone a dirty white (Reitz and Wing 1999:133). In all instances, burnt and unburnt remains were found mixed together, indicating that detritus of hearths was combined with other waste materials (Hesse and Wapnish 1999:88). The infrequency of burnt or charred remains at Nachvak Village and Kongu likely reflects the practice of boiling meat, the heat from which would not alter the chemical composition of the bone (Dawson 2003:21-3; Lyman 1994:216).

Evidence of cut marks was one of the most important modifications for which the faunal remains were examined, as the presence of cut marks reflects the presence and nature of human activities (Lyman 1994:217). In most instances, cut marks appeared as thin, short lines that had been etched into the outer layer of bone. Where multiple cut marks occurred, these were usually parallel. These types of cut marks are indicative of skinning or secondary butchery (Reitz and Wing 1999:128). Occasionally, the cut marks appeared as thicker and deeper hack marks that penetrated the cancellous bone. These were likely made with an axe or saw-like tool and are likely indicative of primary butchery, where gross disarticulation occurred (Reitz and Wing 1999:128). Frequently, the identification of cut marks was made using a geologic loupe or microscope.

Other modifications observed were described in the Additional Comments field of the database. These included unusual soil staining, the presence of unidentified organic matter that was affixed to the remains, the presence of mould and pathologies, which consisted of healed fractures and excessive bone ossification likely attributable to

osteoporosis, and any generally unusual morphology. Any artefactual remains, including cut and drilled bone and antler, were removed and re-catalogued.

4.2.4 *The Comparative Collection*

The most fundamental tool in identifying faunal remains is a large, reliable collection of comparative skeletons that are anatomically complete, and for which key biological data has been collected for each individual of every species (Landon 2005). The comparative collection must be more extensive than one skeleton for each of the animals extant in the study area, as this reduces the impact that individual variation within species can have on accurate faunal identification (Reitz and Wing 1999:362). Preferably, the comparative collection should contain several individuals for each species that represent a wide array of ages, sexes and geographical areas, as regional differences exist in many species. Lastly, the skeletons in the comparative collection should have a distinct catalogue number, and each element should be sided and labelled correctly. The quality of the comparative collection has a significant bearing on the quality of identifications.

The primary comparative collection used in the identification of the Nachvak Village and Kongu faunal remains was the Memorial University faunal collection. This comparative collection is relatively new and small; no information exists on where the skeletons came from, their sex, or their age at death. Few of the skeletons had any anatomical labels. None had a catalogue number that would serve to ensure that all the elements associated with the skeleton in a particular box were actually from that individual. Most of these problems were slowly remedied; some new skeletons were

acquired and processed, and those that were extant were correctly sorted and labelled using the comparative faunal collection at the University of Toronto.

Despite its shortcomings, the comparative collection contained most, but not all, of the taxa recovered from Nachvak Village and Kongu. Listed below are the relevant taxa that exist in the Memorial University faunal collection, along with a brief description:

Whale – one small toothed whale cranium without teeth; two incomplete adults (probably beluga and pilot whale)

Dog – one complete adult Newfoundland, one compete subadult Great Dane

Arctic Fox – one complete adult (probably female), partially mummified; many adult composite crania and mandibles

Black bear - one incomplete immature individual

Polar bear – one female cranium/mandible; one male cranium (archaeological); a set of extracted mandibular teeth

Walrus – an incomplete adult, one adult cranium; three mandibles

Seal – many random elements of unknown species

Bearded seal – one incomplete composite skeleton (archaeological material)

Ringed seal – one complete adult and one incomplete adult

Harp seal – many complete composite adult skeletons (archaeological and modern material), one complete neonatal skeleton

Caribou – one complete adult, one adult cranium, one juvenile cranium; several incomplete composite skeletons

Pekin duck – one incomplete adult skeleton (domestic)

Common eider – one complete male adult

Ptarmigan – one complete adult skeleton

Great black-backed gull – one complete adult skeleton

Common murre – one complete adult

Black guillemot – one complete adult

Arctic char – one complete individual

Atlantic cod – two complete individuals

Several resources supplemented the Memorial University faunal collection. First was the Howard Savage Faunal Archaeo-Osteology Collection at the University of Toronto. Two trips were made to use this comparative collection, which is much larger and more extensive than the one at Memorial University. It contains many individuals of a variety of ages and sexes for each species extant in northern Labrador, including those species such as arctic hare, red fox, polar bear and assorted birds, which were identified in the faunal assemblages but which did not exist in the MUN comparative collection. During both trips, archaeological materials as well as MUN comparative skeletons were brought to Toronto and identified using the U of T comparative collection. For the MUN comparative skeletons, this entailed identifying unlabelled elements, confirming the identification of others, and siding some elements that were already labelled. Some of the archaeological faunal remains identified using the U of T comparative collection were then used as comparative materials for future identifications.

Other supplements used included a vast array of osteological keys, skeletal atlases, and other illustrated aids (Amorosi 1992; Cannon 1987; Gilbert 1980; Gilbert et

al. 1981; Hodgetts 1999; Pales and Lambert 1971; Post 2003, 2004a, 2004b; Schmid 1972). These provided additional information that when used in conjunction with the skeletal comparisons allowed for much more confidence in the accuracy of the identifications.

4.3 Calculation Methodology

A major component of faunal studies is the synthesis of the raw data into meaningful summaries that serve to answer the initial research questions. Many of these summaries attempt to recreate the original death assemblage that existed at the site before post-depositional taphonomic factors began to alter this assemblage (Reitz and Wing 1999:111). Among the most and frequently used quantification techniques are the Number of Identified Specimens (NISP) and Minimum Number of Individuals (MNI). These calculations are not independent of one another, and thus should be considered as relative, ordinal scale values rather than as exact values of zooarchaeological phenomena (Banning 2000; Grayson 1984; Ringrose 1993). The methodology of calculation, usefulness, and inherent problems of each are discussed below.

4.3.1 *NISP*

The most easily derived quantification technique for faunal remains is NISP, which is simply the total count of all the faunal remains, including bone, tooth, antler, horn, otoliths, fish scales, etc., or fragments thereof that comprised the analysed faunal assemblage. Every faunal specimen is identified to the most specific taxonomic group possible, which is ideally Species or Genus, but may be as general as Class or Indeterminate. The specimens within each taxonomic group are then counted to give the

number of identified specimens for each taxonomic level of interest. These taxonomic frequencies are then comparable with those from other faunal assemblages (Grayson 1984:17). The most obvious advantage to using NISP is the ease and reproducibility of the calculations (Reitz and Wing 1999:192). As long as the faunal identifications are accurate and precise, all analysts who examine an assemblage will get the same NISP values. Problems with NISP occur when analysts assume that the specimen counts approximate the abundances of taxa in the death assemblage (Reitz and Wing:192). This assumption was made frequently in the last decade, which has led some analysts to have a negative opinion of NISP as a counting measure, and to argue that NISP should not be used as the sole means by which to interpret changing taxonomic frequencies (Grayson 1984:24).

Of the many criticisms of NISP, four are more conspicuous than the others (Grayson 1984). The biggest problem with the use of NISP is that it does not control for factors such as scavenger activities, butchering practices, and many site formation processes that affect specimen counts (Brewer 1992:210). Scavengers have the potential to remove all or parts of some species while ignoring others. Some animals are more heavily butchered than are others; some exist as whole entities at the site while others exist as selected skeletal elements only (Grayson 1984:20). Some site formation processes can alter taxonomic frequencies by differentially rendering some faunal specimens unidentifiable or completely destroying them while others are unaffected, so that there appears to be a higher frequency of one taxon over another when this is not the case (Reitz and Wing 1999:192). Density-mediated attrition differentially affects faunal

remains, whereby those taxa, elements or individuals with dense bones decay at a slower rate than do those with less dense bones. Fragmentation can also differentially increase the number of faunal specimens of some species while those that are more robust remain intact.

Another problem with the use of NISP is that it overrepresents those taxa that have easily identifiable elements, regardless of the degree of modification (Brewer 1992:210). For example, the unique morphology of seal bones means that they are more easily identifiable, even when fragmented, than terrestrial mammal remains. Related to this is the fact that some species have greater numbers of elements in the skeleton, and thus are more likely to be identified in the faunal assemblage (Grayson 1984:21). In many instances, the differential ability of the analyst to identify the remains of some species over others results in skewed perceptions of the importance of those species to the diet of the site's inhabitants (White 1953:397).

A third problem is that field collection techniques greatly affect NISP values (Brewer 1992:211). Larger screen meshes will hinder the recovery of small or heavily fragmented remains (Reitz and Wing 1999:193). Samples collected without screening will contain a higher percentage of large specimens relative to screened samples (Grayson 1984:22).

The last criticism of NISP is that there is no way to ascertain how many individuals are actually responsible for the identified specimens (Brewer 1992:211). If ten different elements were identified to one taxon, each could represent a different individual or all could be from the same individual. This potential interdependence of the

specimens means that some statistical analyses of NISP counts are theoretically inappropriate, as such tests may assume that the specimens in the analysed sample are independent and that they are representative of the population (Grayson 1984:24).

One conclusion is clear: due to the relatedness of NISP to the number of identifiable skeletal elements in an animal, site formation processes, field recovery techniques and potential interdependence of specimens, faunal analysts should not use NISP alone to interpret any changes in frequency as reflecting changes in human behaviour, including hunting practices, length of site occupation or depositional behaviour (Reitz and Wing 1999:192). In an effort to counteract the analytical issues of NISP, zooarchaeologists also use other quantification methods, including MNI, MNE (Minimum Number of Elements) and MAU (Minimal Animal Units), that somewhat compensate for these problems.

4.3.2 *MNI*

One of the most complicated faunal calculations is MNI, which theoretically estimates the minimum number of individuals required to account for all the specimens in a given faunal assemblage (Grayson 1984). This estimate is not an interpretation of the actual number of individuals present at the site; many more individuals could have been present before site formation processes altered the originally deposited assemblage, and those individuals that are included in the MNI estimate may have existed as a small portion of the entire animal only (Reitz and Wing 1999:195). Complications with MNI arise because there are many ways to calculate this estimate, with all ways being very similar and yet using subtle variations in method, which results in few zooarchaeologists

employing precisely the same methodology. The first step of the process used here was to consider each archaeological feature at both sites as a distinct unit of analysis. All specimens that were recovered from the same unit and level were analysed for possible refitting and when a refit was made, it was noted in the database. It was also noted when specimens could potentially be part of the same element or if they were obviously from different elements, using size and presence of anatomical features as reference points. Few refits were attempted between units, levels or features. Once the refitting process was complete, Microsoft Access queries allowed the separation of all elements for a given taxon into right and left portions. For each element, fractions of the complete element for each side were summed using the presence of anatomical features, anatomical orientation, element age and the refits as reference points to produce the minimum number of elements, where the element side with the largest MNE was usually also the MNI. No attempts were made to actually match elements into pairs, and so it is assumed based on symmetry alone that the left and right sides of one element may actually form a pair from the same individual animal (Reitz and Wing 1999:195). In addition to examining the elements of each taxon separately, all elements were scrutinized together in order to identify differences in the skeletal age of the elements that represented differences in chronological age of the animals responsible for the faunal assemblages. In most instances, the relative fusion rates of elements were used to indicate which elements fused before which others, so that it could be known if a fused element of one type could exist in the same individual as an unfused element of another type. To use caribou as an example, the presence of what amounted to 20 right adult

femora plus the presence of a foetal skull would equal an MNI of 21 individuals, because none of the femora could be expected to exist in the same individual as the skull. In the end, this laborious process produced the minimum number of individuals for each taxon in the faunal assemblages from each analysed site context at Nachvak Village and Kongu.

The use of MNI has several advantages over NISP. First, it is one of the only ways to compare the frequencies of mammals, birds and fish remains, as the number of skeletal elements in a taxon or the number of symmetric versus asymmetric elements are no longer the focus of analysis at the level of the individual (Reitz and Wing 1999:199). Second, MNI does not suffer the potential effects of interdependence that NISP does: all individuals included in the MNI estimate are distinct and separate from all other individuals in the estimate, and this independence allows MNI to be theoretically easier to statistically manipulated (Brewer 1992:211). Other statistical problems can emerge with MNI, however, because MNI values are typically very small, and when many taxa in an assemblage have values of only one or two, it is difficult to make meaningful comparisons. There is also the problem of comparability between investigators, who use different methods to calculate MNI. Lastly, MNI diminishes some of the effects of differential transport of bone to the site: if a complete skeleton of a hare was recovered from the site but only the limbs of a caribou, NISP would differ between the two but MNI would be the same (Grayson 1984:28).

MNI is similar to NISP in that it also depends on the number and identifiability of skeletal elements, site formation processes, and field recovery techniques (Reitz and Wing 1999:195). If a particular taxon has elements that are more recognisable or better

preserved than others are, it will be more frequently identified in the sample, and thus have a higher MNI than a taxon that is harder to identify or poorly preserved. MNI can also overrepresent the importance of some taxa. For example, if a single bear tooth exists in the sample that likely represented a curio to the site's inhabitants, it has an MNI of one, whereas a caribou with an MNI of one may be represented by 100 specimens (Reitz and Wing 1999:195). Lastly, the aggregation units into which bone is assembled in the field greatly affect the calculation of MNI (Grayson 1984:29). If bone is collected and analysed by excavation unit or site stratum, values for MNI will be much different than if all bone from the entire site is analysed as a single sample.

While no single measure of abundance is trouble-free, the use of several different measures allows for a reasonable impression of the relative abundances of the various taxa represented in the faunal assemblages. Before presenting the faunal findings from Nachvak Village and Kongu, two things must be mentioned about the calculation of MNI and the identification of the seal remains.

Regarding MNI, the minimum number of individuals is calculated at the species level of identification wherever possible, but in many cases, higher taxonomic levels contained a larger number of specimens that represented additional individuals. In these cases, MNI was calculated by combining the specimens of both taxonomic levels, in order to better approximate the true MNI. If an MNI value is listed for both ringed seal and small seal, for example, it means that there were additional small seal individuals present that could not be accounted for by the MNI of ringed seal. For example, in Table 4.2, there were two small seals in addition to the five ringed seal individuals.

Regarding the identification of seal remains, there is a remarkable degree of intraspecies variability which makes taxonomic identification difficult (Woollett et al. 2000: 399). For the analysis presented here, seal remains were identified to species whenever possible, however in the many cases where the species could not be confidently identified, the specimens were identified as being 'small seal', 'medium seal' or 'large seal'. A placement in the 'small seal' category meant that the specimen could represent either a small seal species or a small individual of a larger species. The majority of such specimens are likely to be ringed seal, based on size and the general abundance of ringed seals, but they could also be harbour seal or young harp seal elements. A placement in the 'medium seal' category meant that the specimen was too large to be from the smallest seal species (ringed/harbour seal) but too small to be from the largest seal species (bearded seal). The majority of such specimens are likely to be harp seal, but could also be hooded or grey seal. A placement in the 'large seal' category meant that the specimen could represent either a large seal species or a large individual of a smaller seal species. The majority of such specimens are likely to be bearded seal, but could also be hooded or grey seals, or particularly large harp seal elements.

4.4 Nachvak Village

A total of 5,581 faunal remains were examined from Nachvak Village. Table 4.1 shows a breakdown of these remains by taxonomic class for the entire village. Clearly, mammal remains dominate the assemblage, as they account for over 97% of the total analysed material. The rest of the classes make up less than 1% each. The indeterminate class accounted for 1% of the total, and the majority of remains classified in this category

are likely to be either small mammal or bird.

Table 4.1: Distribution of Specimens by Class, Nachvak Village

Class	Number of Specimens	Percent of Total Number
Mammalia	5,449	97.6
Aves	33	0.6
Osteichthyes	28	0.5
Gastropoda	11	0.2
Bivalvia	6	0.1
Indeterminate	54	1.0
TOTAL	5,581	100.0

In following sections, the faunal findings are presented for each feature.

4.4.1 *House 2*

House 2 was the largest house excavated at Nachvak Village. It required 44 excavation units to expose the house architecture, which consisted of two separate sleeping lobes, two separate floors and a shared entrance tunnel that included an alcove (Whitridge 2004b: 87). The faunal remains from 11 out of 44 excavated units were included in the analysis. The faunal findings for H2 are listed in Table 4.2, along with the NISP, %NISP and MNI.

A total of 1,409 specimens were analysed, of which 782, or 55.5%, were identifiable. Mammals were represented by 1,306 specimens, which comprised 92.7% of the entire assemblage, but only 746 specimens, or 57.1% were identifiable. Caribou was the most frequently occurring taxon, with 318 specimens comprising almost 43% of the identified mammalian assemblage. Small seals, which were the second most frequently occurring taxon, had 234 specimens. The Canidae category, which comprised about 8% of the mammalian assemblage, was mostly comprised of fragmentary wolf and/or dog ribs, vertebrae and phalanges. Most of the 560 unidentifiable specimens were likely

small seal or caribou, based on size and density.

Birds were represented by only two identifiable taxa: ptarmigan and gulls. Ptarmigan, which could be either willow or rock ptarmigan, was by far the most abundant bird, with 20 specimens comprising almost 91% of the bird assemblage. There were only two gull specimens identified, which were probably from a great black-backed and a herring gull, and these comprised less than 1% of the bird assemblage.

Fish were also represented by two identified taxa: arctic char and cod. These existed in almost equal proportions, with seven specimens identified as char and six identified as a cod species. The cod specimens could represent either the Atlantic or Greenland varieties.

Shells were identified from only one unit (unit 42) and were represented by both gastropods and bivalves. The gastropod specimen was a type of limpet and the bivalve specimens were probably a type of mussel. The bivalve specimens likely postdate the site occupation, as they retained their periwinkle-blue colour and were recovered from Level 2b, which was only 20 cm beneath the sod.

There were 45 specimens, or 3.2% of the entire assemblage, that were unidentifiable to class, and these are likely to be small mammal or bird cortical bone.

Table 4.2: Relative Frequencies of House 2 Fauna

			NISP	% NISP	MNI
Mammalia	*Lepus arcticus*	Arctic hare	12	1.6	1
	Cetacea	Whales	34	4.6	1
	Canidae	Canid family	55	7.4	
	Canis familiaris	Domestic dog	17	2.3	2
	Vulpes sp.	Red or Arctic fox	18	2.4	2
	Vulpes Vulpes	Red fox	7	0.9	1
	Ursus sp.	Bear species	5	0.7	
	Ursus maritimus	Polar bear	1	0.1	1
	Odobenus rosmarus	Walrus	2	0.3	1
	Large Phocidae	Large seal	13	1.7	1
	Erignathus barbatus	Bearded seal	1	0.1	1
	Medium Phocidae	Medium seal	3	0.4	
	P. groenlandicus	Harp seal	3	0.4	2
	P. groenlandicus or *C. cristata*	Harp or Hooded seal	1	0.1	
	Small Phocidae	Small seal	234	31.4	2
	Pusa hispida	Ringed seal	22	2.9	5
	Rangifer tarandus	Caribou	318	42.6	6
		Total Identified	746	99.9	
		Total Indeterminate	560		
		Total Mammal	1306		26
Aves	*Lagopus* sp.	Ptarmigan species	20	90.9	3
	Larus sp.	Gull family	2	0.9	1
		Total Identified	22	100.0	
		Total Indeterminate	4		
		Total Bird	26		4
Osteichthyes	*Salvelinus alpinus*	Arctic char	7	53.8	1
	Gadus sp.	Cod species	6	46.2	1
		Total Identified	13	100.0	
		Total Indeterminate	12		
		Total Fish	25		2
Gastropoda	Patellogastropoda or Pulmonata	Limpet	1	100.0	1
		Total Gastropod	1	100.0	1
Bivalvia		Total Indeterminate Bivalve	6		
Indeterminate		Total Indeterminate Class	45		
		TOTAL FAUNA	1409		33

Table 4.3 lists each taxon identified from H2 and shows how the specimens for each were distributed by age. The numbers presented in Table 4.3 are the NISP for each age category and the number in brackets is the %NISP within that taxon. The majority of taxa identified had more adult-aged specimens than any other age category. The main exceptions to this were ringed seals, small seals and caribou, where most specimens were younger than adult. This is to be expected with the seals, since bones fuse after sexual maturity is attained (Storå 2000). While the majority of specimens for large seals and harp seals were adult-aged, they consisted of elements, such as the metatarsals, that fuse relatively early in a seal (Storå 2000:222). There were only 12 juvenile specimens, 11 of which were identified as small seal and one of which was caribou.

Table 4.3: Age Distribution of House 2 Fauna; NISP (% Mammal NISP)

	Juvenile	Immature	Immature+	Subadult	Adult	TOTAL
Arctic Hare			2 (17)		10 (83)	12
Canid			14 (25)	1 (2)	40 (73)	55
Dog			6 (35)		11 (65)	17
Fox sp.			8 (44)		10 (56)	18
Red fox					7 (100)	7
Bear sp.			4 (80)		1 (20)	5
Polar bear					1 (100)	1
Walrus					2 (100)	2
Large seal		1 (8)	4 (31)		8 (62)	13
Medium seal		2 (67)			1 (33)	3
Small seal	11 (5)	90 (38)	88 (38)	1 (<1)	44 (19)	234
Bearded seal				1 (100)		1
Ringed seal		2 (9)	15 (68)	2 (9)	3 (14)	22
Harp seal					3 (100)	3
Harp or Hooded			1 (100)			1
Caribou	1 (<1)	123 (39)	127 (40)	3 (1)	64 (20)	318

There were seven types of modification observable on the H2 fauna. Table 4.4 shows the distribution of these modifications for H2. For each modification listed, the

total number of specimens exhibiting that modification is presented, along with a breakdown of the relative number of taxa exhibiting the modification. The final column lists the percentage of the H2 assemblage that exhibited each modification.

Table 4.4: Distribution of House 2 Faunal Modifications

Modification	Number	% NISP	Taxa (NISP) Exhibiting Modification
Carnivore gnaw	70	5.0	canid (3), dog (3), fox (2), small seal (26), bearded seal (1), ringed seal (2), harp seal (1), caribou (30), indeterminate mammal (2)
Digested	1	0.1	indeterminate mammal (1)
Bleached	1	0.1	small seal (1)
Weathered	112	7.9	arctic hare (1), canid (1), dog (6), fox (3), bear (3), walrus (1), large seal (2), medium seal (1), small seal (40), ringed seal (2), harp seal (1), caribou (27), indeterminate mammal (22), gull (1), indeterminate bird (1)
Root etching	3	0.2	small seal (1), caribou (2)
Cut marks	18	1.3	dog (1), polar bear (1), walrus (1), large seal (1), small seal (3), caribou (11)
Pathology	3	0.2	canid (2), indeterminate mammal (1)

The modification with the greatest effect on the H2 faunal assemblage was weathering, which was present on about 8% of the specimens observed. Weathering does not seem to have differentially affected one taxon over another: both large and small mammals were affected, as were bird remains. Carnivore gnaw marks were also relatively abundant, affecting 5% of the H2 assemblage. While mammalian remains were the only ones to exhibit carnivore marks, a variety of species was affected. Caribou and small seals were almost equally affected, with 30 and 26 occurrences, respectively.

The only cultural modification observed on the H2 faunal remains was cut marks. There were 18 cut marks observed, and most of these were on caribou ribs, vertebrae and upper front limb elements.

Two canidae phalanges and a mammalian costal cartilage were pathological. The proximal end of both phalanges was distorted and extra-ossified, as was the cartilage.

4.4.2 *House 4*

House 4 was the house with the smallest number of excavation units at Nachvak Village. It required 24 excavation units to expose the majority of the house architecture, which consisted of a back sleeping area and a central floor. As mentioned previously, some of the excavation units were placed in the area hypothesised to be the entrance tunnel, but confirming the identity of this area requires further excavations. The faunal remains from ten out of 24 excavated units were included in the analysis. The faunal findings for H4 are listed in Table 4.5, along with the NISP, %NISP and MNI.

A total of 311 specimens were analysed, of which 139, or 44.7%, were identifiable. Mammals were represented by 309 specimens, which comprised 99.4% of the entire assemblage, but only 137 specimens, or 44.3% were identifiable. Small seals had the highest NISP and MNI, with 71 specimens comprising about 52% of the mammalian assemblage, and representing at least four individuals in addition to the ringed seal individual. Whales had the second highest NISP, with 22 specimens comprising about 16% of the mammalian assemblage. Caribou was the third most frequently occurring taxon, with 18 specimens comprising about 13% of the mammalian assemblage.

There was only one fish specimen recovered and it was identified as salmonid.

The only shell recovered, a gastropod specimen, was a type of limpet.

Table 4.5: Relative Frequencies of House 4 Fauna

			NISP	%NISP	MNI
Mammalia	Cetacea	Whales	22	16.1	1
	Canidae	Canid family	1	0.7	1
	Large Phocidae	Large seal	5	3.6	1
	Medium Phocidae	Medium seal	3	2.2	
	P. groenlandicus	Harp seal	3	2.2	1
	P. groenlandicus or *C. cristata*	Harp or Hooded seal	3	2.2	
	Small Phocidae	Small seal	71	51.8	4
	Pusa hispida	Ringed seal	8	5.8	1
	P. hispida or *P. vitulina*	Ringed or Harbour seal	3	2.2	
	Rangifer tarandus	Caribou	18	13.1	2
		Total Identified	137	99.9	
		Total Indeterminate	172		
		Total Mammal	309		11
Osteichthyes	Salmonidae	Char, Salmon or Trout	1	100.0	1
		Total Fish	1	100.0	1
Gastropoda	Patellogastropoda or Pulmonata	Limpet	1	100.0	1
		Total Gastropod	1	100.0	1
		TOTAL FAUNA	311		13

Table 4.6 lists each taxon identified from H4 and shows how the specimens for each were distributed by age. As with H2, the majority of taxa identified had more adult-aged specimens than any other age category. The only exception to this was the small seals, where immature specimens occurred at a higher frequency than did adult ones and which again likely reflects the fact that many seal elements fuse relatively lately in life. Small seals also had the only two juvenile specimens. Most specimens in the other seal categories (ringed, harp, ringed/harbour, harp/hooded) were predominantly immature+ in age, which could be anything from immature to adult.

Table 4.6: Age Distribution of House 4 Fauna; NISP (% Mammal NISP)

	Juvenile	Immature	Immature+	Subadult	Adult	TOTAL
Canid					1 (100)	1
Large seal			2 (40)		3 (60)	5
Medium seal		1 (33)			2 (67)	3
Small seal	2 (3)	23 (32)	33 (46)	2 (3)	11 (15)	71
Ringed seal		1 (12)	5 (63)		2 (25)	8
Harp seal			2 (67)		1 (33)	3
Ringed or Harbour			3 (100)			3
Harp or Hooded			2 (67)		1 (33)	3
Caribou		1 (6)	9 (50)		8 (44)	18

There were only four types of modifications observed on the House 4 faunal remains. Table 4.7 shows the distribution of these modifications for H4. The most frequently observed modification was weathering, just as in H2. Almost 10% of the H4 faunal remains exhibited signs of weathering. Carnivore gnaw marks were not as abundant as in H4, and the 2.3 % of the remains exhibiting these marks were exclusively small seals and harp/hooded seals. There were only two cut marks observed on small seal and caribou remains, and only one ringed seal specimen had rodent gnaw marks.

Table 4.7: Distribution of House 4 Faunal Modifications

Modification	Number	% NISP	Taxa (NISP) Exhibiting Modification
Carnivore gnaw	7	2.3	small seal (6), harp/hooded seal (1)
Rodent gnaw	1	0.3	ringed seal (1)
Weathered	30	9.6	large seal (2), medium seal (1), small seal (8), ringed seal (2), harp seal (2), ringed/harbour (1), caribou (3), indeterminate mammal (11)
Cut marks	2	0.6	small seal (1), caribou (1)

4.4.3 *House 6*

House 6 was the second smallest house excavated at Nachvak Village. It required

30 excavation units to expose the house architecture, which consisted of a back sleeping area, a central floor, and an entrance tunnel. This house was excavated during two field seasons; the first removed the fill layers and the second exposed subfloor and wall deposits. There was a marked difference in the degree of faunal preservation between the remains excavated during the two excavation seasons: those excavated during the first season were better preserved than those removed during the second. As there were problems with a high water table in parts of the house during excavations, it is possible that bone did not preserve in these areas. The faunal remains from 19 out of 30 excavated units were included in the analysis. The faunal findings for H6 are listed in Table 4.8, along with the NISP, %NISP and MNI.

A total of 1,991 specimens were analysed, of which 662, or 33.2%, were identifiable below the level of class. Mammals were represented by 1,977 specimens, which comprised 99.3% of the entire assemblage, but only 657 specimens, or 33.2% were identifiable. Small seals had the highest NISP and MNI, with 343 specimens comprising about 52% of the mammalian assemblage. Whales had the second highest NISP, with 125 specimens comprising 19% of the mammalian assemblage. Caribou was the third most frequently occurring taxon, with 90 specimens comprising almost 14% of the mammalian assemblage. Most of the 1,320 unidentifiable specimens were medium or large sized mammals, based on size and density.

Four unidentifiable specimens comprised the bird assemblage, one of which was from a very small songbird-sized species.

Two unidentifiable specimens represented the fish remains.

There were five gastropod specimens identified, all of which were limpets.

Only three specimens were unidentifiable to class. These were likely bird or small mammal cortical bone.

Table 4.8: Relative Frequencies of House 6 Fauna

			NISP	%NISP	MNI
Mammalia	Cetacea	Whales	125	19.0	1
	Canidae	Canid family	9	1.4	
	Canis familiaris	Domestic dog	13	2.0	2
	Vulpes sp.	Red or Arctic fox	4	0.6	
	Vulpes vulpes	Red fox	3	0.5	1
	Odobenus rosmarus	Walrus	3	0.5	1
	Large Phocidae	Large seal	13	2.0	1
	Erignathus barbatus	Bearded seal	4	0.6	1
	Medium Phocidae	Medium seal	11	1.7	1
	P. groenlandicus	Harp seal	10	1.5	4
	P. groenlandicus or *P. vitulina*	Harp or Harbour seal	2	0.3	
	P. groenlandicus or *C. cristata*	Harp or Hooded seal	3	0.5	
	Small Phocidae	Small seal	343	52.2	9
	Pusa hispida	Ringed seal	21	3.2	4
	P. hispida or *P. vitulina*	Ringed or Harbour seal	3	0.5	
	Rangifer tarandus	Caribou	90	13.7	3
		Total Identified	657	100.2	
		Total Indeterminate	1320		
		Total Mammal	1977		28
Aves		Total Indeterminate Bird	4		
Osteichthyes		Total Indeterminate Fish	2		
Gastropoda	Patellogastropoda or Pulmonata	Limpet	5	100.0	5
		Total Gastropod	5	100.0	5
Indeterminate		Total Indeterminate Class	3		
		TOTAL FAUNA	1991		33

Table 4.9 lists each taxon identified from H6 and shows how the specimens for each taxon were distributed by age. As with Houses 2 and 4, the majority of taxa

identified had more adult-aged specimens than any other age category. The only exceptions to this was the small seals, which had a high frequency of juvenile specimens, the ringed seals, where equal numbers of immature and adult specimens existed, and harp seals, where most specimens were subadult in age. As the corresponding chronological age of fusion is known for harp seals (Storå 2000), these subadult specimens would provide a reliable estimate of age at death. Ringed seals, small seals and caribou had the only juvenile specimens.

Table 4.9: Age Distribution of House 6 Fauna; NISP (% Mammal NISP)

	Juvenile	Immature	Immature+	Subadult	Adult	TOTAL
Canid			3 (33)		6 (67)	9
Dog		2 (15)	2 (15)		9 (69)	13
Fox sp.					4 (100)	4
Red fox			2 (67)		1 (33)	3
Walrus			1 (33)		2 (67)	3
Large seal		1 (8)	4 (31)		8 (61)	13
Medium seal		1 (9)	7 (64)		3 (27)	11
Small seal	37 (11)	98 (29)	144 (42)		64 (19)	343
Bearded seal			3 (75)		1 (25)	4
Ringed seal	1 (5)	3 (14)	13 (62)		4 (19)	21
Harp seal				6 (60)	4 (40)	10
Ringed or Harbour			3 (100)			3
Harp or Harbour					2 (100)	2
Harp or Hooded			1 (33)		2 (67)	3
Caribou	4 (4)	15 (17)	27 (30)	2 (2)	42 (47)	90

There were six types of modification observed on the H6 faunal remains. Table 4.10 shows the distribution of these modifications for H6. As with Houses 2 and 4, the most frequently occurring modification was weathering. About 12% of the H6 faunal assemblage was weathered. There were even fewer carnivore gnaw marks on H6 faunal remains than on those from H4, with only 1.5% of the assemblage exhibiting signs of

them. Seals were the only identified taxa exhibiting evidence of digestion. Sun bleaching was present on only 0.2% of the assemblage. The mammalian remains that exhibited signs of burning were mainly indeterminate because burning rendered them unidentifiable. There was only one cut mark, which was on a caribou metacarpal.

Table 4.10: Distribution of House 6 Faunal Modifications

Modification	Number	% NISP	Taxa (NISP) Exhibiting Modification
Carnivore gnaw	29	1.5	canid (1), dog (2), large seal (3), medium seal (1), small seal (13), harp seal (1), ringed/harbour (1), caribou (4), indeterminate mammal (3)
Digested	6	0.3	medium seal (1), small seal (4), indeterminate mammal (1)
Bleached	4	0.2	whale (1), caribou (3)
Weathered	229	11.5	whale (54), canid (5), dog (2), fox (1), red fox (3), large seal (2), medium seal (4), small seal (58), ringed seal (2), harp seal (2), harp/harbour (2), caribou (35), indeterminate mammal (59)
Burning	55	2.8	whale (2), small seal (3), indeterminate mammal (50)
Cut marks	1	0.1	caribou (1)

4.4.4 *House 12*

House 12 was the second largest house excavated at Nachvak Village. It required 38 excavation units to expose the house architecture, which consisted of two sleeping lobes, one in the back and one to the east side, a shared central floor, and an entrance tunnel. As with H6, H12 was excavated over two field seasons; the first season removed most of the fill layers and exposed the floor, and the second exposed walls and tunnel areas. There was a marked difference in the degree of faunal preservation between the two excavation seasons, wherein those that were excavated during the first were much better preserved than those removed during the second. The faunal remains from 22 out of 38 excavated units were included in the analysis. Table 4.11 lists the faunal findings.

Table 4.11: Relative Frequencies of House 12 Fauna

			NISP	%NISP	MNI
Mammalia	Cetacea	Whales	96	19.2	1
	Canidae	Canid family	10	2.0	1
	Canis familiaris	Domestic dog	49	9.8	1
	Vulpes sp.	Red or Arctic fox	1	0.2	
	Vulpes vulpes	Red fox	2	0.4	1
	Ursus sp.	Bear species	2	0.4	
	Ursus maritimus	Polar bear	1	0.2	1
	Odobenus rosmarus	Walrus	1	0.2	1
	Large Phocidae	Large seal	8	1.6	1
	Erignathus barbatus	Bearded seal	1	0.2	1
	Medium Phocidae	Medium seal	9	1.8	
	P. groenlandicus	Harp seal	59	11.8	4
	P. groenlandicus or *C. cristata*	Harp or Hooded seal	4	0.8	
	Small Phocidae	Small seal	183	36.6	5
	Pusa hispida	Ringed seal	18	3.6	2
	P. hispida or *P. vitulina*	Ringed or Harbour seal	3	0.6	
	Rangifer tarandus	Caribou	53	10.6	5
		Total Identified	500	100.0	
		Total Indeterminate	1010		
		Total Mammal	1510		24
Aves	*Larus* sp.	Gull family	1	100.0	1
		Total Identified	1	100.0	
		Total Indeterminate	2		
		Total Bird	3		1
Gastropoda	Patellogastropoda or Pulmonata	Limpet	4	100.0	4
		Total Gastropod	4	100.0	4
Indeterminate		Total Indeterminate Class	6		
		TOTAL FAUNA	1523		29

A total of 1,523 specimens were analysed, of which 505, or 33.2%, were identifiable. Mammals were represented by 1,510 specimens, which comprised 99.1% of the entire assemblage, but only 500 specimens, or 33.1% were identifiable. Small seals had the highest NISP and MNI, with 183 specimens comprising almost 37% of the

mammalian assemblage. Whales had the second highest NISP, with 96 specimens comprising about 19% of the mammalian assemblage and representing at least one individual. Harp seal was the third most frequently occurring taxon, with 59 specimens comprising almost 12% of the mammalian assemblage. This contrasts with the other house assemblages, where ringed seals were more abundant than harp seals. Two other species, caribou and dog, were represented in frequencies comparable to harp seal, with 53 caribou and 49 dog specimens having MNIs of five and one, respectively. The 1,010 unidentifiable specimens likely reflect a wide array of mammalian species.

Only one bird specimen was identifiable as the ulna of a gull. This specimen was likely from a great black-backed gull, however it was too incomplete to be certain.

There were four gastropod specimens identified, all of which were limpets. Most of these were recovered from upper fill layers but one was recovered from the floor layer.

Only six specimens were unidentifiable to class. These are likely to be bird or fish remains.

Table 4.12 lists each taxon identified from H12 and shows how the specimens for each taxon were distributed by age. As with the other houses, the majority of taxa identified had many more adult-aged specimens than any other age category. There were only a few exceptions to this. Once again, the small seals had many more immature specimens than adult ones, which simply means that these were killed before they reached old age. Medium seals had equal numbers of immature and adult specimens. As with all of the other houses, harp seals were not represented by any juvenile or immature specimens. Small seals and caribou once again had the only juvenile specimens,

however, there were fewer in the H12 assemblage than in the H2 or H6 assemblages. No taxon was represented by all of the age categories, as there were no subadult specimens recovered. One of the adult-aged small seal specimens was a baculum, representing the only confirmed male individual at Nachvak Village.

Table 4.12: Age Distribution of House 12 Fauna; NISP (% Mammal NISP)

	Juvenile	Immature	Immature+	Subadult	Adult	TOTAL
Canid					10 (100)	10
Dog		1 (2)	17 (35)		31 (64)	48
Fox sp.					1 (100)	1
Red fox					2 (100)	2
Bear sp.					2 (100)	2
Polar bear					1 (100)	1
Walrus					1 (100)	1
Large seal		1 (13)	5 (63)		2 (25)	8
Medium seal		2 (22)	5 (56)		2 (22)	9
Small seal	2 (1)	63 (34)	90 (49)		28 (15)	183
Bearded seal					1 (100)	1
Ringed seal		3 (17)	5 (28)		10 (55)	18
Harp seal			7 (12)		52 (88)	59
Ringed or Harbour			3 (100)			3
Harp or Hooded					4 (100)	4
Caribou	2 (4)	7 (13)	34 (64)		10 (19)	53

There were six types of modification observed on the H12 faunal remains. Table 4.13 shows the distribution of these modifications for H12. As with the other houses, the most frequently occurring modification was weathering. Almost 28% of the H12 faunal assemblage was weathered, which is much more than any other house. There were few carnivore gnaw marks, with only 0.8% of the assemblage exhibiting signs of them. There was only one small seal specimen with evidence of rodent gnaw marks and one ringed/harbour seal specimen with cut marks. The scarcity of gnaw marks and cut marks likely relates to the degree of weathering, with the remains too poorly preserved to reflect

evidence of modification. Five mammalian remains had evidence of digestion, most of which were small seals. As with H6, the mammalian remains that exhibited signs of burning were mostly indeterminate because burning rendered them unidentifiable. There was one dog radius that was pathological.

Table 4.13: Distribution of House 12 Faunal Modifications

Modification	Number	% NISP	Taxa (NISP) Exhibiting Modification
Carnivore gnaw	12	0.8	dog (1), small seal (7), ringed seal (1), caribou (1), indeterminate mammal (2)
Rodent gnaw	1	0.1	small seal (1)
Digested	5	0.3	small seal (4), indeterminate mammal (1)
Weathered	419	27.5	whale (19), canid (5), dog (13), large seal (3), medium seal (3), small seal (41), ringed seal (5), harp seal (51), harp/hooded (2), caribou (27), indeterminate mammal (246), indeterminate class (4)
Burning	14	0.9	small seal (3), indeterminate mammal (10), gull (1)
Cut marks	1	0.1	ringed/harbour (1)
Pathology	1	0.1	dog (1)

4.4.5 *House 2 Midden*

House 2 Midden was located south of the mouth of the House 2 entrance tunnel towards the western end of the site. This midden was partially excavated when House 2 was excavated in 2003; the faunal remains recovered during this excavation were included in the House 2 sample. Four other units were excavated in 2006 and all faunal remains recovered were included in this analysis. The faunal findings for H2 Midden are listed in Table 4.14, along with the NISP, %NISP and MNI for each taxon represented.

Mammalia was the only taxonomic class identified in the H2 Midden assemblage. Of the 121 mammalian remains analysed, only 36 specimens, or 29.8%, were identifiable. Small seals had the highest NISP, with 18 specimens comprising 50% of the assemblage. These reflected a minimum of five individuals. Caribou and harp/hooded

seals had the second highest NISP, with each being represented by four specimens and each having an MNI of one. Ringed seal had the third highest NISP, with three specimens comprising about 8% of the assemblage. Interestingly, each ringed seal and walrus specimen represented a different individual. Many of the 85 unidentifiable specimens were likely small seal remains, but other mammals also likely contributed.

Table 4.14: Relative Frequencies for H2 Midden Fauna

			NISP	%NISP	MNI
Mammalia	Cetacea	Whales	2	5.6	1
	Canis familiaris	Domestic dog	2	5.6	1
	Odobenus rosmarus	Walrus	2	5.6	2
	Pagophilus groenlandicus	Harp seal	1	2.7	1
	P. groenlandicus or *C. cristata*	Harp or Hooded seal	4	11.1	
	Small Phocidae	Small seal	18	50.0	2
	Pusa hispida	Ringed seal	3	8.3	3
	Rangifer tarandus	Caribou	4	11.1	1
		Total Identified	36	100.0	
		Total Indeterminate	85		
		Total Mammal	121		
		TOTAL FAUNA	121		11

Table 4.15: Age Distribution of H2 Midden Fauna; NISP (% Mammal NISP)

	Juvenile	Immature	Immature+ Subadult	Adult	TOTAL
Dog			1 (50)	1 (50)	2
Walrus			2 (100)		2
Small seal	1 (6)	1 (6)	15 (83)	1 (6)	18
Ringed seal			3 (100)		3
Harp seal			1 (100)		1
Harp or Hooded			2 (50)	2 (50)	4
Caribou			3 (75)	1 (25)	4

Most of the faunal remains from H2 Midden were older than juvenile, but otherwise of indeterminate age. Table 4.15 lists each taxon identified from H2 Midden and shows how the specimens for each taxon were distributed by age. As most of the

taxa with immature+ specimens tended to have other adult-aged specimens and no juvenile or immature specimens, it is likely that most of the immature+ specimens for these taxa are adult-aged. Small seals were the only taxon to have juvenile and immature remains.

There were only two modifications observed on the H2 Midden fauna: weathering and cut marks. Table 4.16 shows the distribution of these modifications for H2 Midden. Weathering affected 19% of the assemblage while only one cut mark was observed on a dog tibia. The frequency of weathered remains was comparable to H6 and H12, where more than 10% was weathered.

Table 4.16: Distribution of H2 Midden Faunal Modifications

Modification	Number	% NISP	Taxa (NISP) Exhibiting Modification
Weathered	23	19.0	dog (2), small seal (6), harp/hooded (4), caribou (3), indeterminate mammal (8)
Cut marks	1	0.8	dog (1)

4.4.6 *House 10 Midden*

House 10 Midden was located south of the mouth of House 10, which was not excavated, near the eastern end of the site. Four units were excavated and all faunal remains recovered were included in the analysis. The faunal findings for H10 Midden are listed in Table 4.17, along with the NISP, %NISP and MNI for each taxon.

As with H2 Midden, Mammalia was the only taxonomic class identified in the H10 Midden assemblage. Of the 226 mammalian remains analysed, only 109 specimens, or 48.2%, were identifiable. Small seals had the highest NISP, with 56 specimens comprising about 51% of the assemblage. These reflected a minimum of four individuals in addition to the two ringed seal individuals identified. Whales had the second highest

NISP, with 24 specimens comprising 22% of the assemblage. Caribou was the third most frequently occurring taxon, with eight specimens comprising about 7% of the assemblage. Large seal and dog had frequencies comparable to that of caribou, with seven and six specimens identified, respectively.

The 117 unidentifiable specimens were all most likely the remains of medium and large-sized mammals.

Table 4.17: Relative Frequencies of H10 Midden Fauna

			NISP	%NISP	MNI
Mammalia	Cetacea	Whales	24	22.0	1
	Canis familiaris	Domestic dog	6	5.5	2
	Vulpes sp.	Red or Arctic fox	1	0.9	1
	Large Phocidae	Large seal	7	6.4	1
	Medium Phocidae	Medium seal	1	0.9	
	P. groenlandicus or C. cristata	Harp or Hooded seal	3	2.8	2
	Small Phocidae	Small seal	56	51.4	4
	Pusa hispida	Ringed seal	3	2.8	2
	Rangifer tarandus	Caribou	8	7.3	1
		Total Identified	109	100.0	
		Total Indeterminate	117		
		Total Mammal	226		
		TOTAL FAUNA	226		14

The age distribution of the H10 Midden fauna was similar to that of H2 Midden. Table 4.18 lists each taxon identified from H10 Midden and shows how the specimens for each taxon were distributed by age. As with all the other features at Nachvak Village, the specimens recovered from H10 Midden were primarily adult or immature+ in age, where the immature+ specimens were also most likely adult-aged. Within the small seals, there were equal numbers of juvenile/immature specimens and subadult/adult ones. Caribou and medium seals were the only other taxa with immature specimens.

Table 4.18: Age Distribution of H10 Midden Fauna; NISP (% Mammal NISP)

	Juvenile	Immature	Immature+	Subadult	Adult	TOTAL
Dog			2 (33)		4 (67)	6
Fox sp.			1 (100)			1
Large seal			6 (86)		1 (14)	7
Medium seal		1 (100)				1
Small seal	4 (7)	9 (16)	30 (54)	1 (2)	12 (21)	56
Ringed seal			3 (100)			3
Harp or Hooded			2 (67)		1 (33)	3
Caribou		1 (13)	2 (25)		5 (63)	8

There were four modifications observed on the H10 Midden fauna. Table 4.19 shows the distribution of these modifications for H10 Midden. Weathering affected about 18% of the assemblage, which was very similar to the degree of weathering observed in H2 Midden. As the midden units in both areas were relatively shallow, they were comparable in depth to the undisturbed layers of H6 and H12 that were exposed in their second season of excavation. Thus, the thick layers of overburden and undisturbed fill likely were necessary for the faunal remains at Nachvak Village to be well-preserved.

Table 4.19: Distribution of H10 Midden Faunal Modifications

Modification	Number	% NISP	Taxa (NISP) Exhibiting Modification
Carnivore gnaw	6	2.7	large seal (1), small seal (4), indeterminate mammal (1)
Digested	2	0.9	small seal (2)
Bleaching	1	0.4	large seal (1)
Weathered	40	17.7	dog (3), large seal (7), medium seal (1), small seal (17), harp/hooded (3), caribou (6), indeterminate mammal (3)

Other modifications observed in the H10 Midden assemblage were carnivore gnawing, evidence of digestion and sun bleaching. If the indeterminate mammal specimen with carnivore teeth marks is a seal vertebra fragment, which is most likely, then these modifications occurred solely on seal remains.

4.4.7 *Nachvak Village Taxonomic Richness*

The features excavated at Nachvak Village varied dramatically in their taxonomic richness, mainly due to the variance in sample sizes. Figure 4.2 shows the taxonomic richness of each feature at Nachvak Village, where as the cumulative proportion of NISP increases, so does the number of genera. House 2 was the richest feature, with 14 genera being represented by at least one specimen in the assemblage. The H2 assemblage, while appearing to have low diversity due to the low cumulative proportions, is actually very diverse (Banning 2000:111). The proportions of the H2 genera are very evenly spaced until the elbow of the line is reached, where an abnormal value (the large amount of caribou remains) drastically affected the cumulative proportions.

The rest of the features at Nachvak Village varied only slightly in their degree of taxonomic richness. The features with the smallest sample sizes, H2 Midden and H10 Midden appear to be very diverse relative to the other features. House 4 and H6 are remarkably similar considering the sample sizes were extremely different, with 311 remains analysed from H4 and 1,991 remains analysed from H6. House 12 had a sample size that was slightly smaller than that of H6, and yet only seven genera existed in the H6 assemblage. It is unlikely that further analyses of H6 fauna would yield many more genera, since 63% of the excavated units were included in the current sample. It remains to be seen whether the H4 graph would change to look more similar to H6 or H12 if more fauna were analysed.

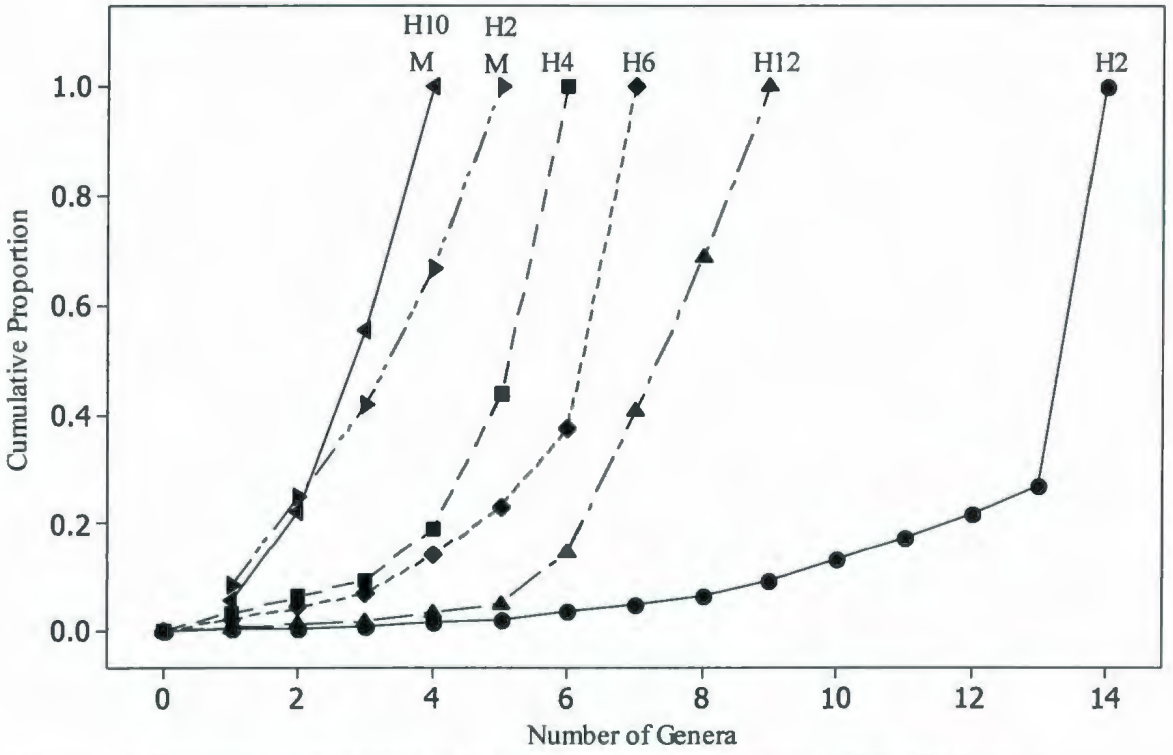


Figure 4.2: Taxonomic Richness of Nachvak Village Features (NISP: H10M=18, H2M=12, H2=435, H4=32, H6=144, H12=188)

4.5 Kongu

A total of 8,909 faunal remains were examined from Kongu. Table 4.20 shows a breakdown of these remains by taxonomic class. As with Nachvak Village, mammal remains dominated the assemblage, accounting for 94% of the total analysed material. Osteichthyes made a more significant contribution to the assemblage at Kongu than at Nachvak Village, accounting for 2.6% of the analysed material. The bird and gastropod classes made up less than 1% each. The indeterminate class accounted for 2.5% of the total, and the majority of remains classified in this category are likely to be either weathered mammalian cortical bone flakes or bird bone fragments.

The following sections discuss the fauna recovered from East Trench, West

Trench and Centre Trench at Kongu.

Table 4.20: Distribution of Specimens by Class, Kongu

Class	Number of Specimens	Percent of Total Number
Mammalia	8,377	94.0
Aves	72	0.8
Osteichthyes	234	2.6
Gastropoda	8	0.1
Indeterminate	218	2.5
TOTAL	8,909	100.0

4.5.1 *East Trench*

East Trench was the most heavily sampled midden area at Kongu. It was located on the easternmost side of the site, alongside the largest dwelling. During the first season of excavation in 2004, the crew began by excavating a 3m by 1m trench where two out of the three units were completed that year. During the second season of excavation, the third unit was reopened and continued, and two more units were begun. By the end of the second season, only one of the new units had yet to be completely excavated. Of the five excavated units, only the remains from the first three were included in this faunal analysis. The faunal findings for East Trench are listed in Table 4.21, along with the NISP, %NISP and MNI for each taxon represented.

A total of 2,857 specimens were analysed, of which 1,149, or 40.2%, were identifiable. Mammals were represented by 2,762 specimens, which comprised 96.7% of the entire assemblage, but only 1,144 specimens, or 41.4% were identifiable. Small seals had the highest NISP and MNI, with 920 specimens comprising about 80% of the mammalian assemblage and reflecting at least 8 individuals in addition to the six ringed seal ones. Ringed seal was the second most frequently occurring taxon, with 41 specimens comprising about 4% of the mammalian assemblage. Medium seal had the

third highest NISP, with 35 specimens comprising 3% of the mammalian assemblage. The majority of these medium seal remains were likely harp seal.

Table 4.21: Relative Frequencies of East Trench Fauna

			NISP	%NISP	MNI
Mammalia	*Lepus arcticus*	Arctic hare	1	0.1	1
	Cetacea	Whales	27	2.4	1
	Canidae	Canid family	1	0.1	
	Canis familiaris	Domestic dog	18	1.6	3
	Vulpes vulpes	Red fox	2	0.2	1
	Ursus maritimus	Polar bear	1	0.1	1
	Odobenus rosmarus	Walrus	1	0.1	1
	Large Phocidae	Large seal	30	2.6	
	Erignathus barbatus	Bearded seal	4	0.3	2
	Medium Phocidae	Medium seal	35	3.1	
	P. groenlandicus	Harp seal	18	1.6	4
	Cystophora cristata	Hooded seal	1	0.1	1
	P. groenlandicus or *C. cristata*	Harp or Hooded seal	21	1.8	
	Small Phocidae	Small seal	920	80.4	8
	Pusa hispida	Ringed seal	41	3.6	6
	P. hispida or *P. vitulina*	Ringed or Harbour seal	7	0.6	
	Rangifer tarandus	Caribou	16	1.4	2
		Total Identified	1144	100.1	
		Total Indeterminate	1618		
		Total Mammal	2762		31
Aves	*Somateria mollissima*	Common eider	1	33.3	1
	Mergus serrator	Red-breasted merganser	1	33.3	1
	Larus argentatus	Herring gull	1	33.3	1
		Total Identified	3	99.9	
		Total Indeterminate	18		
		Total Bird	21		3
Osteichthyes		Total Indeterminate Fish	2		
Gastropoda	Patellogastropoda or Pulmonata	Limpet	2	100.0	2
		Total Gastropod	2	100.0	2
Indeterminate		Total Indeterminate Class	70		
		TOTAL FAUNA	2857		36

Table 4.22 lists each taxon identified from East Trench and shows how the specimens for each taxon were distributed by age. As with the Nachvak Village assemblages, the majority of taxa identified had more adult-aged specimens than any other age category. Seal specimens were the only exception to this, where small seals and ringed seals had many more immature specimens than adult ones. Many of these specimens were smaller and slighter than the immature-aged ones recovered at Nachvak Village, suggesting that these individuals were actually young in chronological age. The juvenile-aged specimens identified were from dog and small-sized seal. Based on the eruption sequence of the juvenile dog mandible, the puppy was between two and three months old at death (Silver 1970: 299).

One of the small seal immature+ specimens was identified as a baculum, representing one of two male individuals in the Kongu assemblages.

Table 4.22: Age Distribution of East Trench Fauna; NISP (% Mammal NISP)

	Juvenile	Immature	Immature+	Subadult	Adult	TOTAL
Arctic Hare					1 (100)	1
Canid					1 (100)	1
Dog	1 (6)	1 (6)	5 (28)		11 (61)	18
Red fox			1 (50)		1 (50)	2
Polar bear					1 (100)	1
Walrus					1 (100)	1
Large seal		10 (33)	8 (27)	1 (3)	11 (37)	30
Medium seal		5 (14)	11 (31)		19 (54)	35
Small seal	31 (3)	271 (29)	456 (50)	8 (1)	154 (17)	920
Bearded seal		2 (50)	1 (25)		1 (25)	4
Ringed seal	3 (7)	17 (41)	8 (20)	2 (5)	11 (27)	41
Harp seal			7 (39)	2 (11)	9 (50)	18
Hooded seal					1 (100)	1
Ringed or Harbour	1 (14)	1 (14)	4 (57)		1 (14)	7
Harp or Hooded		5 (24)	11 (52)		5 (24)	21
Caribou			16 (100)			16

There were eight types of modification observed on the East Trench faunal remains. Table 4.23 shows the distribution of these modifications for East Trench. The most frequently occurring modification was weathering, with 9.4% of the assemblage exhibiting a weathered state.

Table 4.23: Distribution of East Trench Faunal Modifications

Modification	Number	% NISP	Taxa (NISP) Exhibiting Modification
Carnivore gnaw	84	2.9	red fox (1), large seal (3), medium seal (3), small seal (58), ringed seal (4), harp seal (3), ringed/harbour (1), harp/hooded (2), caribou (1), indeterminate mammal (8)
Rodent gnaw	1	<0.1	ringed/harbour (1)
Digested	4	0.1	small seal (2), ringed seal (1), indeterminate mammal (1)
Bleached	1	<0.1	small seal (1)
Weathered	270	9.4	canid (1), dog (5), red fox (1), large seal (5), medium seal (5), small seal (176), ringed seal (11), harp seal (5), hooded seal (1), ringed/harbour (1), harp/hooded (3), caribou (3), indeterminate mammal (45), herring gull (1), indeterminate bird (5), indeterminate class (2)
Burning	11	0.4	small seal (5), ringed seal (3), ringed/harbour (1), indeterminate mammal (2)
Cut marks	20	0.7	polar bear (1), medium seal (1), small seal (13), ringed seal (1), harp seal (1), caribou (1), indeterminate mammal (1), indeterminate class (1)
Pathology	3	<0.1	small seal (2), ringed seal (1)

Almost 3% of the faunal remains showed carnivore gnaw marks. Most of these were on seal remains. There was only one specimen with rodent gnaw marks, one that had been sun bleached and four that had been digested. No specimens showed root etching marks, which is interesting because the site was covered with dense grass that had deep-penetrating roots. Cultural modifications were infrequent, with less than 1% of the remains showing signs of either burning or cut marks. Some of the cut marks were

very narrow in diameter while others were wide and looked like axe chop marks.

One ringed seal radius and a small seal ulna and phalanx were pathological.

4.5.2 *West Trench*

West Trench was one of two areas excavated on the western side of the site. The faunal findings for West Trench are listed in Table 4.24.

West Trench had a total of 1,482 faunal remains recovered from the three excavation units, which was the lowest number of specimens recovered from any of the Kongu trenches. There were 965 identifiable specimens, which is about 65% of the total recovered. Mammals were represented by 1,213 specimens, which comprised 81.8% of the entire assemblage, but only 868 specimens, or 71.6% were identifiable. Small seals had the highest NISP, with 669 specimens comprising about 77% of the mammalian assemblage and reflecting at least two individuals in addition to the eight ringed seal ones. Large seal had the second highest NISP, with 78 specimens comprising 9% of the mammalian assemblage. Ringed seal was the third most frequently occurring taxon, with 42 specimens comprising almost 5% of the mammalian assemblage.

Bird remains comprised almost 3% of the assemblage and about two-thirds of those recovered were identifiable. Five species were identified, including an eider duck, two gulls, a murre and a raven.

Fish remains comprised about 15% of the total West Trench assemblage. Of the 223 fish specimens recovered, only 71 were identifiable. It is likely that most of these are Atlantic cod remains, but some could be Greenland cod.

Table 4.24: Relative Frequencies of West Trench Fauna

			NISP	%NISP	MNI
Mammalia	Cetacea	Whales	8	0.9	1
	Canis familiaris	Domestic dog	10	1.2	2
	Odobenus rosmarus	Walrus	1	0.1	1
	Large Phocidae	Large seal	78	9.0	1
	Erignathus barbatus	Bearded seal	5	0.6	1
	Medium Phocidae	Medium seal	14	1.6	
	P. groenlandicus	Harp seal	14	1.6	3
	P. groenlandicus or *C. cristata*	Harp or Hooded seal	21	2.4	1
	Small Phocidae	Small seal	669	77.1	2
	Pusa hispida	Ringed seal	42	4.8	8
	P. hispida or *P. vitulina*	Ringed or Harbour seal	2	0.2	
	Rangifer tarandus	Caribou	4	0.5	1
		Total Identified	868	100.0	
		Total Indeterminate	345		
		Total Mammal	1213		21
Aves	Anatinae	Duck species	3	11.5	1
	Somateria mollissima	Common eider	3	11.5	1
	Larus marinus	Great black-backed gull	5	19.2	2
	Larus argentatus	Herring gull	3	11.5	1
	Cepphus grylle	Black guillemot	5	19.2	2
	Corvus corax	Common raven	7	26.9	2
		Total Identified	26	99.8	
		Total Indeterminate	15		
		Total Bird	41		9
Osteichthyes	*Gadus* sp.	Cod species	71	100.0	6
		Total Identified	71	100.0	
		Total Indeterminate	152		
		Total Fish	223		6
Indeterminate		Total Indeterminate Class	5		
		TOTAL FAUNA	1482		36

Table 4.25: Age Distribution of West Trench Faunal; NISP (% Mammal NISP)

	Juvenile	Immature	Immature+	Subadult	Adult	TOTAL
Dog		3 (30)	4 (40)		3 (30)	10
Walrus					1 (100)	1
Large seal		23 (29)	34 (44)	1 (1)	20 (26)	78
Medium seal		8 (57)	2 (14)		4 (29)	14
Small seal	24 (4)	429 (64)	183 (27)	4 (1)	29 (4)	669
Bearded seal			3 (60)		2 (40)	5
Ringed seal	3 (7)	31 (74)	3 (7)	2 (5)	3 (7)	42
Harp seal		7 (50)	1 (7)	1 (7)	5 (36)	14
Ringed or Harbour			2 (100)			2
Harp or Hooded		17 (81)	2 (10)	1 (5)	1 (5)	21
Caribou		3 (75)	1 (25)			4

Table 4.25 lists each taxon identified from West Trench and shows how the specimens for each taxon were distributed by age. In contrast to the previously mentioned assemblages from both sites, the majority of taxa identified had more immature-aged specimens than any other age category. Walrus and bearded seal were the only taxa with more adult-aged specimens, but these were few in number. Dog had equal numbers of adult and immature elements. All other taxa had a preponderance of immature specimens, suggesting that individuals of most species were being hunted before they could reach full maturity. Most of the seal specimens categorized as immature were small and slight in nature, suggesting that these actually reflect younger individuals. This could reflect a change in the composition of the seal populations, whereby those near Kongu consisted of fewer adult individuals than those near Nachvak Village, or perhaps Kongu was occupied earlier in the year, when immature seals were abundant. The only juvenile specimens identified were small seal and ringed seal.

Table 4.26: Distribution of West Trench Faunal Modifications

Modification	Number	% NISP	Taxa (NISP) Exhibiting Modification
Carnivore gnaw	66	4.4	dog (2), large seal (8), medium seal (1), small seal (46), bearded seal (2), ringed seal (2), harp/hooded (2), indeterminate mammal (3)
Rodent gnaw	1	0.1	small seal (1)
Digested	2	0.1	small seal (2)
Bleached	24	1.6	small seal (16), ringed seal (4), harp/hooded (4)
Weathered	83	5.6	dog (3), large seal (6), small seal (51), bearded seal (1), ringed seal (1), harp seal (2), harp/hooded (1), indeterminate mammal (16), indeterminate bird (1), cod (1)
Root etched	1	0.1	ringed seal (1)
Cut marks	43	2.9	dog (2), large seal (4), small seal (26), bearded seal (2), ringed seal (4), harp seal (2), harp/hooded (2), indeterminate mammal (1)
Pathology	1	0.1	small seal (1)

There were eight types of modification observed on the West Trench faunal remains. Table 4.26 shows the distribution of these modifications for East Trench. The most frequently occurring modification was weathering, which had a much lower incidence than at any other feature at either site. Less than 6% of the assemblage was weathered. Carnivore gnaw marks affected 4.4% of the assemblage and were seen most frequently on seal remains. Rodent gnawing, digestion marks, and root etching were seen in negligible amounts, and 1.6% of the assemblage was sun bleached, which is more than what was observed at any other feature at either site. Cut marks were the only cultural modification, affecting about 3% of the assemblage. One small seal phalanx was pathological.

4.5.3 *Centre Trench*

Centre Trench was located in the north end of the site and is the only trench to have a paved floor revealed in its lowest layer. The existence of a floor clearly suggests that a type of dwelling had once existed where the trench was placed. The trench consisted of three units and was excavated over two field seasons. During the first season, the first two natural stratigraphic layers were removed from each unit, which represented the sod layer and a fill layer comprised of midden materials. During the second season, the final stratigraphic layer was removed. The faunal findings for Centre Trench are listed in Table 4.27.

Centre Trench had 4,570 faunal remains recovered from the three excavation units, which was the highest number of specimens recovered from any of the Kongu trenches. There were only 1,732 identifiable specimens, which is about 38% of the total recovered. Mammals were represented by 4,402 specimens, which comprised 96.3% of the entire assemblage, but only 1,725 specimens, or 39.2% were identifiable. Small seals had the highest NISP and MNI, with 1,151 specimens comprising about 67% of the mammalian assemblage and reflecting at least 17 individuals in addition to the 11 ringed and one harbour seal individuals identified. Dogs had the second highest NISP, with 117 specimens comprising almost 7% of the mammalian assemblage and representing at least six individuals. Ringed seal was the third most frequently occurring taxon, with 111 specimens comprising almost 6% of the mammalian assemblage. There were 2677 unidentifiable specimens that likely represent a wide array of mammalian species.

Table 4.27: Relative Frequencies of Centre Trench Fauna

			NISP	%NISP	MNI
Mammalia	Cetacea	Whales	51	3.0	1
	Odontoceti	Toothed whale	10	0.6	
	Delphinapterus leucas	Beluga whale	18	1.0	1
	Balaena mysticetus	Bowhead whale	7	0.4	1
	Canidae	Canid family	2	0.1	
	Canis familiaris	Domestic dog	117	6.8	6
	Vulpes sp.	Red or Arctic fox	1	0.1	1
	Ursus sp.	Bear species	7	0.4	1
	Odobenus rosmarus	Walrus	1	0.1	1
	Large Phocidae	Large seal	49	2.8	
	Erignathus barbatus	Bearded seal	13	0.8	3
	Medium Phocidae	Medium seal	54	3.1	
	P. groenlandicus	Harp seal	44	2.6	6
	Cystophora cristata	Hooded seal	4	0.2	1
	P. groenlandicus or *C. cristata*	Harp or Hooded seal	27	1.6	
	Small Phocidae	Small seal	1151	66.7	17
	Phoca vitulina	Harbour seal	1	0.1	1
	Pusa hispida	Ringed seal	111	6.4	11
	P. hispida or *P. vitulina*	Ringed or Harbour seal	18	1.0	
	Rangifer tarandus	Caribou	39	2.3	1
		Total Identified	1725	100.1	
		Total Indeterminate	2677		
		Total Mammal	4402		52
Aves		Total Indeterminate Bird	10		
Osteichthyes	*Gadus* sp.	Cod species	1	100.0	1
		Total Identified	1	100.0	
		Total Indeterminate	8		
		Total Fish	9		1
Gastropoda	Patellogastropoda or Pulmonata	Limpet	6	100.0	6
		Total Gastropod	6	100.0	6
Indeterminate		Total Indeterminate Class	143		
		TOTAL FAUNA	4570		59

There were only ten bird remains recovered and none of these was identifiable, as they were fragments of long bone shafts.

Of the nine fish remains recovered, only one cod specimen was identifiable. This individual could be either Atlantic or Greenland cod.

There were six limpet specimens recovered, none of which could be identified to a more specific taxonomic level.

There were 143 specimens, or about 3% of the assemblage, that were unidentifiable to class. Most of these are likely mammalian cortical bone, but some are likely weathered bird elements.

Table 4.28 lists each taxon identified from Centre Trench and shows how the specimens for each taxon were distributed by age. The age distribution of Centre Trench fauna is more similar to that of East Trench than that of West Trench. Most taxa are represented by an abundance of immature+ specimens, with adult-aged remains outnumbering immature-aged ones. Ringed seals, which are usually characterised by a plethora of juvenile and immature specimens, have more adult-aged ones in Centre Trench. The small seals still have more immature specimens than adult ones, and as these are likely ringed seal remains, it seems that some ringed seals were being hunted when they were relatively young, given that the bones appear small as well as unfused.

One of the small seal immature+ specimens was identified as a baculum, representing one of only three male individuals identified from either site.

Table 4.28: Age Distribution of Centre Trench Fauna; NISP (% Mammal NISP)

	Juvenile	Immature	Immature+	Subadult	Adult	TOTAL
Beluga		3 (50)	3 (50)			6
Canid			1 (50)		1 (50)	2
Dog			38 (32)	1 (1)	78 (67)	117
Fox sp.			1 (100)			1
Bear sp.					7 (100)	7
Walrus			1 (100)			1
Large seal		7 (14)	21 (43)	2 (4)	19 (39)	49
Medium seal		20 (37)	14 (26)	1 (2)	19 (35)	54
Small seal	28 (2)	457 (40)	427 (37)	13 (1)	226 (20)	1151
Bearded seal			5 (38)		8 (62)	13
Ringed seal	1 (1)	14 (13)	48 (43)	4 (4)	44 (40)	111
Harp seal		5 (11)	14 (32)	1 (2)	24 (55)	44
Harbour seal			1 (100)			1
Hooded seal			1 (25)		3 (75)	4
Ringed or Harbour	2 (11)	1 (6)	13 (72)		2 (11)	18
Harp or Hooded		6 (22)	11 (41)	1 (4)	9 (33)	27
Caribou			31 (79)		8 (21)	39

There were six types of modification observed on the Centre Trench faunal remains. Table 4.29 shows the distribution of these modifications for Centre Trench. The most frequently occurring modification was weathering, with 9.2% of the assemblage exhibiting a weathered state. This degree of weathering is comparable to East Trench. Carnivore gnaw marks were observed on 3.5% of the assemblage, and the majority of these were on seal remains. Only small seal remains had evidence of digestion, and only whale and ringed seal had root etching. Cut marks were the only cultural modification, and the 19 examples of these occurred solely on seal remains. Two large seal front flipper remains were pathological.

Table 4.29: Distribution of Centre Trench Faunal Modifications

Modification	Number	% NISP	Taxa (NISP) Exhibiting Modification
Carnivore gnaw	160	3.5	whale (8), dog (2), large seal (7), medium seal (8), small seal (100), bearded seal (2), ringed seal (11), harp seal (9), ringed/harbour (3), harp/hooded (7), indeterminate mammal (3)
Digested	14	0.3	small seal (14)
Weathered	421	9.2	canid (1), dog (54), bear (4), walrus (1), large seal (14), medium seal (11), small seal (207), bearded seal (4), ringed seal (26), harp seal (5), hooded seal (2), ringed/harbour (11), harp/hooded (4), caribou (16), indeterminate mammal (58), indeterminate bird (3)
Root etched	2	<0.1	whale (1), ringed seal (1)
Cut marks	19	0.4	large seal (1), small seal (9), bearded seal (3), ringed seal (4), harp seal (1), harp/hooded (1)
Pathology	2	<0.1	large seal (2)

4.5.4 *Kongu Taxonomic Richness*

The features excavated at Kongu showed remarkable similarity in their taxonomic richness. This likely means that the samples sizes were representative of the middens as a whole. Figure 4.3 shows the taxonomic richness of each feature at Kongu. East Trench was the richest feature, with 13 genera being represented by at least one specimen in the assemblage. Centre Trench was the second richest feature, with 12 genera being identified. West Trench was the least rich feature, with 11 genera being identified. West Trench was the most diverse assemblage, however, as the higher cumulative proportions indicate greater taxonomic evenness (Banning 2000:111).

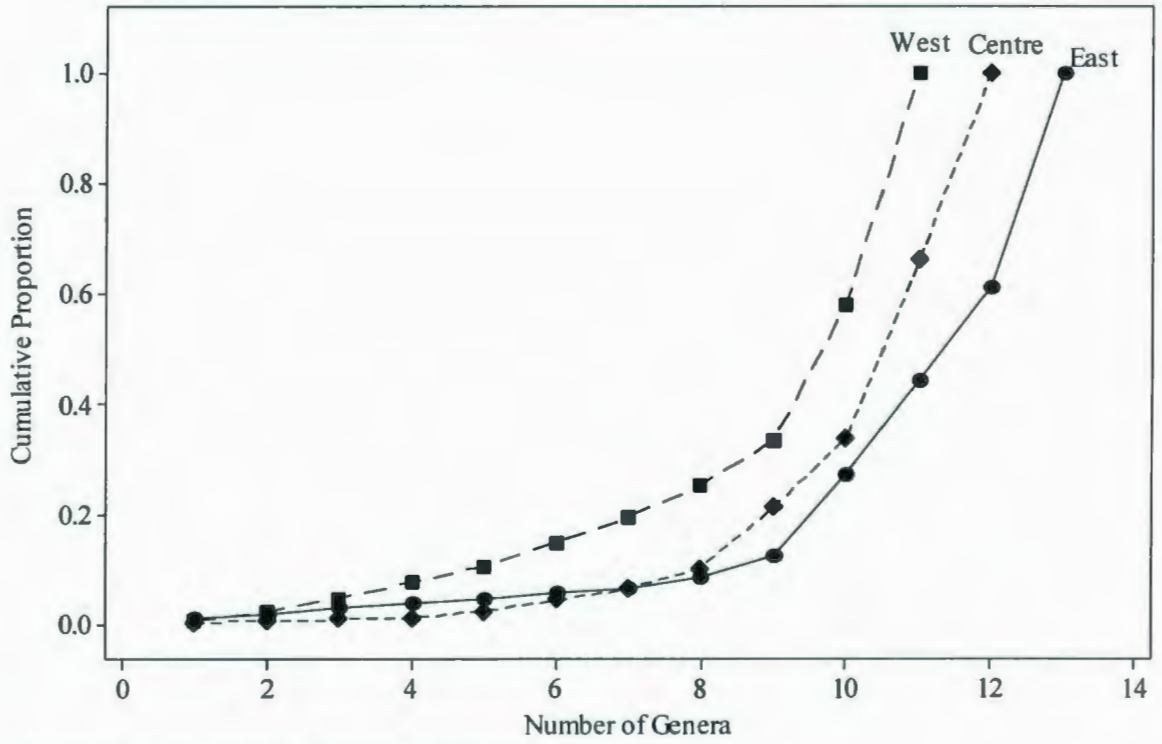


Figure 4.3: Taxonomic Richness of Kongu Features

4.6 Seasonality of Fauna

Most species are present, abundant or in their prime during specific times of year, and it is during these times that they are most likely to be procured (Reitz and Wing 1999:257). By looking at relative abundances of recovered fauna, as well as age and sex profiles, and comparing them to the historically known seasonal fluctuations of animals available in the vicinity of a site, archaeologists can draw conclusions about what time of year a site was occupied and for how long. In addition, archaeologists can investigate the degree to which past cultures used the storage of animals available at other times of the year as a means to circumvent subsistence stress (Minc and Smith 1989; Reitz and Wing 1999:256). Table 4.30 lists all the taxa recovered from either Nachvak Village or Kongu and shows the months of the year that these taxa occur near the sites.

Table 4.30: Seasonal Availability of Fauna

	J	F	M	A	M	J	J	A	S	O	N	D
Arctic hare	*	*	*	*	*	*	*	*	*	*	*	*
Beluga (white whale)				*	*	*	*	*	*	*	*	*
Bowhead whale (Greenland whale)				*	*	*				*	*	*
Arctic/Red fox	*	*	*	*	*	*	*	*	*	*	*	*
Black bear				*	*	*	*	*	*	*		
Polar bear	*	*	*	*	*	*	*	*	*	*	*	*
Walrus	*	*	*	*	*	*	*	*	*	*	*	*
Bearded seal (square flipper seal)	*	*	*	*	*	*	*	*	*	*	*	*
Harbour seal (ranger seal)	*	*	*	*	*	*	*	*	*	*	*	*
Ringed seal (jar seal)	*	*	*	*	*	*	*	*	*	*	*	*
Harp seal	*			*	*	*				*	*	*
Hooded seal								*	*	*		
Caribou				*	*	*	*	*	*	*		
Common eider	*	*	*	*	*	*					*	*
Red-breasted merganser					*	*	*	*	*			
Willow Ptarmigan	*	*	*	*	*	*	*	*	*	*	*	*
Rock Ptarmigan	*	*	*	*	*	*	*	*	*	*	*	*
Great black-backed gull				*	*	*	*	*				
Herring gull	*	*	*	*	*	*	*	*	*	*	*	*
Black guillemot	*	*	*	*	*	*	*	*	*	*	*	*
Common raven	*	*	*	*	*	*	*	*	*	*	*	*
Arctic char	*	*	*				*	*	*	*	*	*
Atlantic cod					*	*	*	*	*	*		
Greenland cod (rock cod)	*	*	*	*	*	*	*	*	*	*	*	*

Arctic hares (*Lepus arcticus*), arctic foxes (*Alopex lagopus*) and red foxes (*Vulpes vulpes*) are available year-round in Nachvak Fiord and, in theory, they could have been procured at any time during the year. All of the hare and fox specimens analysed were fully mature, and thus are not informative about age at death. According to ethnographic sources, the Inuit procured hares and foxes during the late autumn and winter when furs

were in their prime and when populations were most abundant, as hares and foxes disperse in spring to new feeding grounds (Brice-Bennett 1977:115).

Belugas (*Delphinapterus leucas*) exist around the coast of northern Labrador in spring and autumn, and while many belugas migrate farther north for the summer months, some small groups remain for the summer as well (Banfield 1974:250). Ethnographic sources suggest that beluga harvesting in Nachvak Fiord was most profitable during the spring, but that the Inuit also undertook the activity in summer (Taylor 1977:53). The beluga specimens recovered from Kongu are likely all from one adult whale, where the immature-aged specimens were those that fuse last in a beluga.

The current bowhead whale (*Balaena mysticetus*) migration is somewhat different from that of the past, in that the whales no longer travel as far south as they once did. In the past, bowhead whales migrated past the Labrador coast during the autumn and spring, while on their way to and from the warm waters of the Gulf of St. Lawrence, where they spent the winter (Banfield 1974:284). Historically, the Inuit preferred to harvest bowheads during the autumn months (Taylor 1977:50).

Black bears (*Ursus americanus*) are available in northern Labrador throughout the year, except for their winter hibernation period (Banfield 1974:306). Female polar bears *(Ursus maritimus*) hibernate from November until March, but males are available at all times of the year (Banfield 1974:311). Historically, the Inuit hunted both black and polar bears during the summer and polar bears were also hunted during the winter, as they could reliably be found near places where the water remained unfrozen (Taylor 1977). All of the bear specimens recovered from the sites were adult-aged, and thus were not

useful in determining season of death. They only teeth identified were permanent molars and premolars.

Walruses (*Odobenus rosmarus*) and bearded seals (*Erignathus barbatus*), both of which are non-migratory, occupy waters near the ice edge that contain loose pack ice, and polynyas (Woollett et al. 2000:397). According to ethnographic sources, Nachvak Fiord was a productive place to hunt walruses between February and June, and the Inuit preferred to hunt bearded seals during the winter months (Taylor 1977:52). All of the walrus specimens recovered were adult-aged.

Harbour seals (*Phoca vitulina*) are not migratory, and tend to spend most of their time away from winter ice, either onshore or on rocky outcrops offshore (Woollett et al. 2000:397). Harbour seals are not frequently mentioned in ethnographic accounts, and as their frequencies suggest in the Nachvak Fiord faunal assemblages, they do not appear to be as important to the Inuit as were other types of seal. They were likely hunted opportunistically.

Ringed seals (*Pusa hispida*) are considered the cornerstone of historic Inuit economy (Banfield 1974:374). Although ringed seals were available year-round, the Inuit preferred to hunt them at or around their breathing holes in the fast ice during the winter and spring (Taylor 1977:52). During this time, mature ringed seals and infant pups occupy the fast ice areas, while juvenile and immature individuals inhabit open waters in polynyas and at ice edges (Woollett et al. 2000:396). Ringed or small seal remains dominated the assemblages at both sites, and the majority of such remains, particularly at Kongu, were either juvenile or immature in age. The vast majority of the

juvenile and immature-aged elements identified either fuse relatively lately in a ringed seal, when it is six years of age or older, or fuse around eight or ten months of age, suggesting that the majority of seals hunted were either yearlings or adults (Storå 2000:219). One ringed seal mandible from H6 and one small seal mandible from Centre Trench contained deciduous teeth, and since seals shed their deciduous teeth *in utero*, these individuals were foetal (Storå 2000:200). As pups are born between mid-March and mid-April in snow dens on the land-fast ice, these individuals would have died shortly before this time. (Banfield 1974:374). Few specimens indicated an individual younger than eight months old, but several were from individuals that were between three and four years of age. In general, the faunal assemblages at both sites were comprised of yearlings and adult-aged seals, with more yearlings than adults at Kongu. Thin-sectioning of teeth is required to determine the actual season of death.

Like harbour seals, harp seals (*Pagophilus groenlandicus*) avoid fast ice, and instead occupy areas of open water and loose moving pack ice (Woollett et al. 2000:397). Harp seals have an annual migration that involves moving south along the Labrador coast until they reach the Strait of Belle Isle in December, where they remain until their northward migration in the spring (Taylor 1977:50). Historically, the Inuit hunted harp seals when they migrated past the Labrador coast, but also during the early winter months when some harp seals were caught near shore due to unexpected ice formation (Taylor 1977:52). The few immature harp seal specimens recovered suggest that some seals were no more than 10 months old when they died (Storå 2000:219). As pups are born between February and March, this would place their death during the autumn and early winter

migration. The vast majority of completely matured elements could have been acquired from seals killed during either migration.

Hooded seals (*Cystophora cristata*) and grey seals (*Halichoerus grypus*) are not mentioned in the ethnographic records, and their rare presence (or absence in the case of the grey seal) in the faunal assemblages suggests that Inuit hunters did not deliberately target them. Hooded seals do migrate past northern Labrador in the autumn, but they are usually far out to sea, and thus are not as accessible as harp seals (Banfield 1974:379). The range of the grey seal reaches as far north as Nain, Labrador, and so while people voyaging south of Nachvak Fiord may have occasionally hunted this species, which lives in dense colonies onshore and in coastal waters, it is not surprising that this species was not identified in the faunal remains (Banfield 1974:368).

Like the ringed seal, caribou (*Rangifer tarandus*) also figured prominently in the Inuit economy. By having predictable seasonal migrations, and by providing an array of raw materials including skins, antler, meat and sinew, they had obvious appeal as a prey species (Loring 1997:189). Caribou calve in the interior of Labrador and Quebec during the spring, migrate to the Labrador coast for the summer and autumn, and finally migrate to southern areas for the winter (Loring 1997:191). Historically, the Inuit hunted caribou from early August and until the end of October, when their hides were of high quality and when the animals carried an ample amount of meat (Kennedy 1985:270). Most of the immature-aged specimens recovered in the assemblages were those that fuse relatively late in the caribou but there were a few unfused elements identified, such as the distal end of the humerus, that start fusing between two and five months of age (Purdue 1983:1210).

As fawns are born between April and May, these individuals would have been hunted during the late spring and summer (Banfield 1974:384). Using dental eruption, there was one mandible in H12 from an individual that was around one month old, and another in H6 that was around three months of age (Miller 1974: 14). These individuals would have died during the spring and summer.

The common eider (*Somateria mollissima*) winters in southern areas, including northern Labrador, where they remain for the duration of the spring breeding season before migrating to northern areas for the summer and autumn (Godfrey 1966:76). While the Inuit may have hunted eider ducks during the winter or spring, ethnographic accounts indicate that there were no eggs to be found at Nachvak Fiord, suggesting that these birds may have bred elsewhere on the coast during spring (Taylor 1977:52).

The red-breasted merganser (*Mergus serrator*) migrates to northern Labrador for the spring and summer months, at which time it breeds, and then migrates to more southerly regions for the winter (Godfrey 1966:84). Thus, these birds would have been hunted during the spring and summer, along with other migratory birds.

The willow ptarmigan (*Lagopus lagopus*), rock ptarmigan (*Lagopus mutus*), herring gull (*Larus argentatus*), black guillemot (*Cepphus grylle*) and common raven (*Corvus corax*) are non-migratory. These birds, perhaps with the exception of some populations of black guillemot that overwinter out at sea, could have been hunted year-round (Godfrey 1966). According to ethnographic sources, the Inuit preferred to hunt most of these birds during the autumn and winter, as the spring and summer were reserved for the pursuit of migratory species (Brice-Bennett 1977:115).

The great black-backed gull (*Larus marinus*) is a coastal bird that occurs in northern Labrador during the breeding season and then migrates to southern areas for the winter (Godfrey 1966). These birds were hunted between April and August (Brice-Bennett 1977:115).

Arctic char (*Salvelinus alpinus*) are the most northerly-distributed freshwater fish, and the frequency of anadromous populations increases with latitude in Labrador (Power et al. 2005). According to ethnographic records, the Inuit of northern Labrador fished for arctic char predominantly during the summer months, however some groups continued to fish during the autumn and winter months as well (Taylor 1977). The only time the Inuit did not have access to char was during the spring seaward migrations, the beginning of which coincided with the ice break-up in coastal rivers (Power et al. 2005).

Atlantic cod (*Gadus morhua*) are a migratory fish that only spend part of the autumn along the coast of Labrador, where the waters are cooler than those of their resident range around Newfoundland (Cohen et al. 1990:45). Cod were economically important to the Inuit in historic times, but were only caught occasionally by women and children during the summer months in precontact times (Kennedy 1985).

Greenland cod (*Gadus ogac*) is locally known as rock cod and is a popular prey species among Inuit people, both in modern and historic times, who fish for it from mid March to April (Taylor 1977:52). Greenland cod are not a migratory species but they are difficult to catch past July (Mikhail and Welch 1989). Researchers believe they stop eating during this time for unknown reasons, and ice conditions usually prevent the use of nets (Mikhail and Welch 1989:57).

To conclude, the seasonal availability of most species supports the notion that the sites in Nachvak Fiord were occupied predominantly during the cold months, from the autumn to the early spring. In the autumn, hares, foxes, and bears were hunted in low frequencies, as energies were focussed on the harp seal and whale migrations. In winter, ringed and bearded seals and walrus were highly sought after while assorted non-migratory birds, hares, foxes and polar bears were secondary prey. As spring approached, the populations living at Nachvak Village likely dispersed toward the coast to take advantage of the harp seals as they began their northward migration. These would have been hunted along with beluga whales, walruses, migratory birds and Greenland cod. As summer approached, they focussed on the traditional prey of the summer, caribou and arctic char. As autumn returned, the sod houses would have been re-occupied, and the seasonal cycle repeated. Kongu shows a slightly different seasonal schedule and settlement pattern in that summer efforts are focussed less on acquiring caribou and more on acquiring fish and birds. It is possible that the location of Kongu within the middle of the fiord made it more difficult to acquire caribou, or perhaps Inuit hunters chose to focus their efforts on the cod fishery.

4.7 Conclusions

The faunal assemblages from Nachvak Village and Kongu are similar in their taxonomic richness and in their relative abundances of the various taxa identified. Figure 4.4 compares the %MNI of the major taxa identified at each site. The assemblages at both sites boast a wide array of fauna exploited. Bears were exploited in equal frequencies at each site, and dogs/wolves were exploited almost as often at Nachvak

Village as at Kongu. It seems that twice as many birds and fish were procured at Kongu as at Nachvak Village, which could be the result of differential preservation, and it seems that twice as many foxes were procured at Nachvak Village as at Kongu. Both assemblages have an overwhelming predominance of seal remains, most of which are likely to be ringed seal. Kongu had a slightly higher percentage of seal in the assemblages. Interestingly, most of the small seal remains are not fully matured. Those from Kongu were generally younger than those from Nachvak Village, suggesting that perhaps there was an active shift toward the acquisition of infant seals at Kongu. It may be that the seal populations themselves were composed of many more young individuals than in the past, requiring the occupants of Kongu to hunt young seals, or that the location of Kongu in the middle of the fiord allowed access to different seal populations.

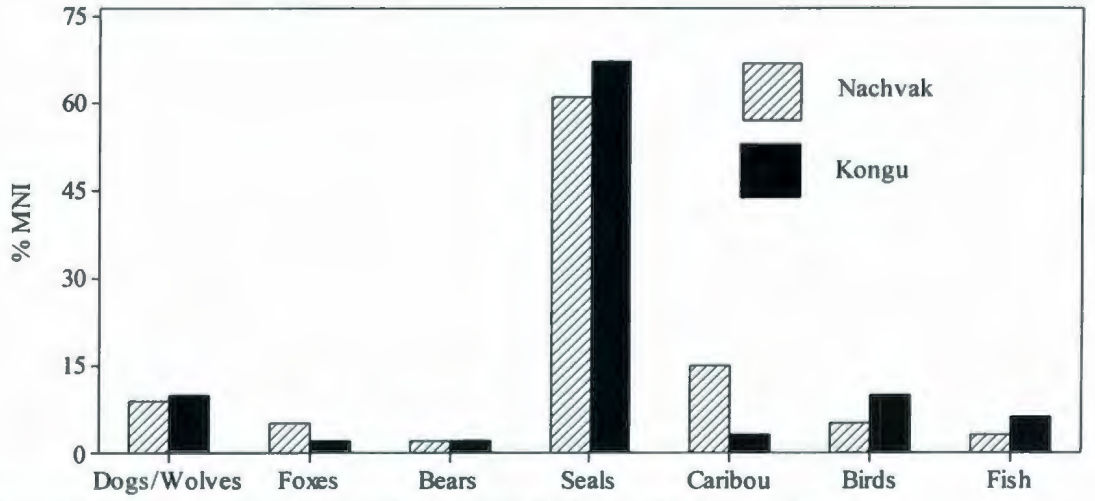


Figure 4.4: Comparison between Nachvak Village and Kongu Fauna

An important difference in relative frequencies observed between the sites lies in the caribou remains. Caribou comprised a greater percentage of the assemblages at Nachvak Village than it did at Kongu, and there are several possible explanations for this.

People may have inhabited Nachvak Village in the late summer, the time when caribou were most desirable, and actively hunted them while living at the site. They may also have hunted the caribou elsewhere in the region, and brought much of the stored meat to Nachvak Village to be consumed throughout the colder months. The inhabitants at Kongu could have focused their summer efforts on the cod fishery, as encouraged by the Moravian missionaries, and thus infrequently hunted caribou (Kennedy 1985:270). The caribou herds may have either shrunk considerably in size by the time Kongu was occupied, or else never existed in the site's vicinity in large numbers, and thus the site's occupants had to acquire alternative resources. It is likely a combination of these factors that resulted in the change in exploitation observed in the faunal assemblages.

The next chapter examines the spatial distribution of the faunal remains recovered from House 2 at Nachvak Village. The goal is to define patterns of use or discard of the faunal remains by comparing their frequencies, as defined in several different ways, with the architecture of the house. These include modern taxonomy, body part frequencies, season of procurement, naturally occupied habitats and age at death. Any patterns that do exist could highlight aspects of precontact Inuit understandings of animals.

Chapter 5

The Spatial Analysis of House 2 Faunal Remains

5.1 Introduction

This chapter concerns the spatial relationships that exist between the various taxa represented in the faunal assemblage and the architecture of one excavated feature at Nachvak Village: House 2. Historic Inuit ethnographies record that various taboos and rituals existed for the appropriate treatment of hunted animals. For example, the remains of sea and land mammals were to be consumed separately in order to prevent contamination, and the crania of seals were to be placed in the direction in which the seals had been travelling at the time of their death (e.g. Hawkes 1916; Søby 1969). If the precontact Inuit practiced such rituals, there is a chance that the patterning of such behaviour could be visible in the archaeological record. Within a dwelling, the place allotted to particular animal remains, in relation to other animal remains and to the dwelling architecture, may be informative of the place these animals occupy within the precontact Inuit cognitive framework (Whitridge 2004a). In an attempt to investigate this, the relative position of faunal remains from House 2 is examined based on specific and more general taxonomic representation, body part frequency, season of procurement, the natural realm normally associated with each taxon (water, sea, air) and location of cut marks. The next section reviews the site context utilised in the spatial analysis.

5.2 House 2

Four houses were excavated at Nachvak Village (H2, H4, H6, H12), and while

spatial analyses into each of these would likely reveal interesting information about faunal discard and depositional patterning, particularly because of the differences in the number and location of architectural features within each house, it was not possible to thoroughly analyse each of them. House 2 was chosen for the analysis because it had completely exposed internal architecture and had the highest percentage of identifiable remains (55%), which could either indicate that the faunal remains recovered were well preserved, thus perhaps reflecting a later occupation of the dwelling, or that the occupants of H2 butchered and processed the bones to a lesser degree than those of the other houses. As the number of bones recovered from each context at Nachvak Village, and the degree to which these were processed and preserved, was as variable as the dwelling structures themselves, it is assumed that no one house better reflects 'typical' precontact Inuit depositional behaviour.

All excavated dwellings at Nachvak Village contained three stratigraphic levels: the first level is the surface sod, the second level is the fill that may represent refuse related to the occupation in the case of a segregated dwelling like H2, but which may also contain refuse unrelated to dwelling occupation (Stenton and Park 1994), and the third level is the floor and subfloor layers. Within each stratum, excavations proceeded in arbitrary 10cm sub-levels. In the interest of securing a larger sample size, all sub-levels for each level in H2 were amassed into one. The sod layer (level 1) contained few faunal remains and was thus omitted from the spatial analysis.

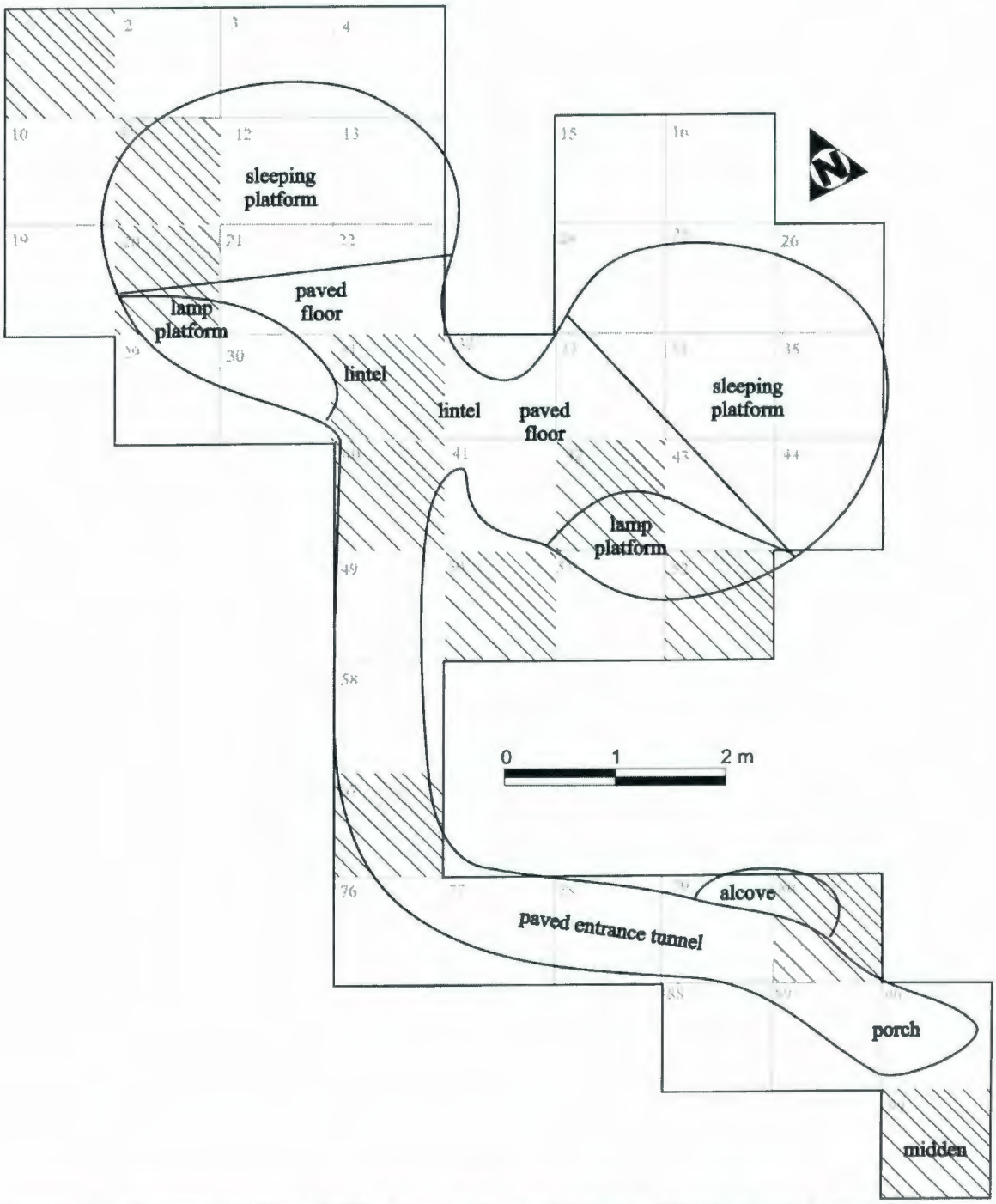


Figure 5.1: Schematic Plan of H2 (adapted from Whitridge 2004b; shaded areas indicate units included in spatial analysis)

House 2 had eleven excavation units included in the spatial analysis. Figure 5.1 shows a schematic interpretation of the H2 floor plan, with the excavation units and major architectural areas labelled. Two of the excavation units included in the spatial analysis were located along the walls (units 1 and 50), one was in the northern sleeping platform (unit 11), three were associated with lamp platforms (units 20, 42 and 52), one was near the lintels (unit 31), two were in the entrance tunnel (units 40 and 67), one was associated with the alcove of the entrance tunnel (unit 80) and the last was along the southernmost house-midden interface (unit 99). The 2006 excavations of the H2 midden area were an extension of this midden unit. While the eleven excavation units included in the analysis were randomly sampled from the whole, there was no further sampling of the faunal remains recovered from each of these units. Every bone recovered from levels 2 and 3 of each of the eleven units was identified and included in this analysis.

Table 5.1 summarises the number of identified specimens (NISP) recovered from each architectural area. Most of the identifiable remains were recovered from inside the house rather than from the entrance tunnel or midden. About 81% of the identifiable remains were recovered from areas near the lamp platforms, where the majority of bones would have been processed for cooking, heating and lighting (Le Mouël and Le Mouël 2002). The walls had the second highest number of identifiable specimens recovered and about half of these were recovered from the sod layer. Interestingly, the midden produced as many specimens as did the walls and yet only 18 of these were identifiable, suggesting either poor preservation of the midden materials, or more likely, that the faunal remains deposited here were processed beyond recognition. The lintel areas

contained about 3% of the identifiable remains. The sleeping platform and the entrance tunnel units produced 14 identifiable specimens and there was only a slight difference in the total number of faunal remains recovered from these areas. The alcove in the entrance tunnel produced the second highest number of faunal remains and yet only 4% of these were identifiable. Where sample sizes are less than 100, any trends observed are less likely to be representative of the overall pattern.

Table 5.1: NISP and %NISP for H2 Fauna by Associated Architecture

	Wall	Sleeping Platform	Lamp Platform	Lintel	Entrance Tunnel	Alcove	Midden	Total
NISP	51	14	631	21	14	33	18	782
% NISP	6.5	1.8	80.7	2.7	1.8	4.2	2.3	100
Total Fauna (identifiable+ unidentifiable)	78	38	1039	52	43	81	78	1409

The following sections present the spatial associations between the faunal materials recovered from the second and third stratigraphic levels and the architectural areas. The relative abundances of the faunal remains are examined using the individual excavation units as the unit of analysis. This necessarily results in the comparison of small sample sizes, in some cases extremely small, as there were not many excavation units that contained large amounts of faunal material in any one stratigraphic layer. Thus, the sampled data presented here, while providing some account of the distribution of faunal remains in space, may not be representative of the population of a whole. In particular, where the NISP is very small, these values should not be considered to accurately reflect meaningful patterning. The NISP used in the comparisons is indicated below each graphic.

The first section examines the relationships among species, as defined by modern

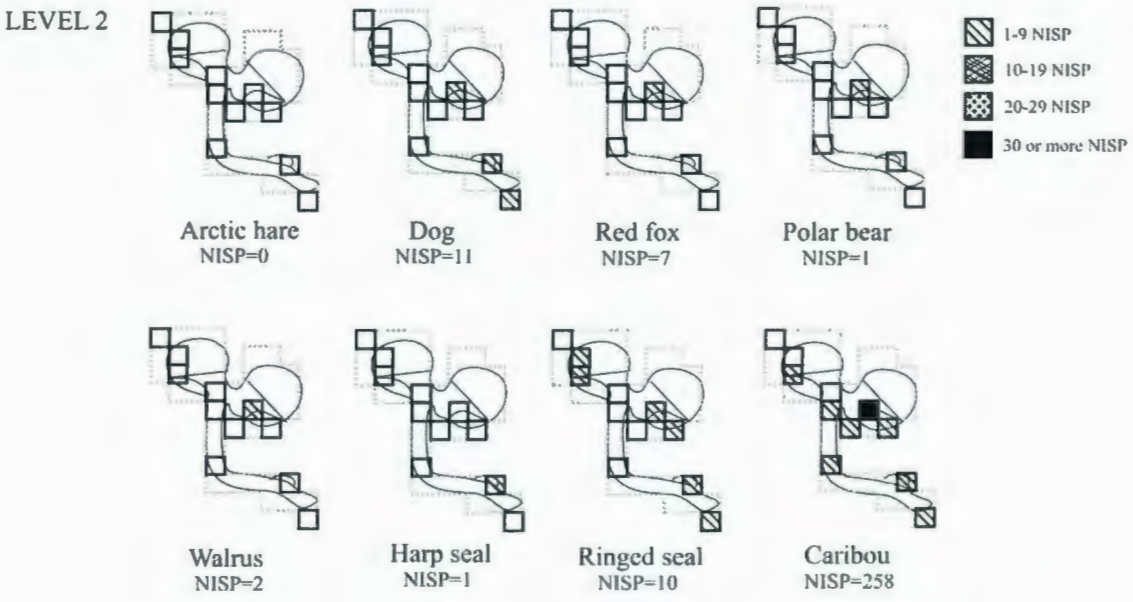
taxonomic standards. Then, the same faunal materials are re-examined using more generalised taxonomic groupings with the intention of revealing patterns not observable with the narrow focus of the species-level inquiry. Next, generalised body part frequencies are examined with the goal of revealing any patterns that may exist relating to the intentional association of skeletal parts with particular architectural areas. Then, the faunal materials are analysed by season of procurement, as patterns in deposition may relate to the season in which the precontact Inuit acquired the various taxa. The next analysis examines the faunal remains based on the natural realm (land, sea or water) typically associated with each taxon identified in the assemblage, in an attempt to observe the ethnographically described taboos, such as those relating to the land and sea dichotomy (Hawkes 1916; McGhee 1977; Søby 1969). Lastly, the spatial location of the specimens with cut marks is examined, as the processing of bones affects their final deposition.

5.2.1 *Spatial Analysis by Species*

There were eight species identified within Levels 2 and 3. Dog, harp seal, ringed seal and caribou remains were recovered from both levels. In addition to these, Level 2 also contained red fox, polar bear and walrus, and Level 3 contained arctic hare. There was one bearded seal specimen recovered from the surface sod of the northwestern-most excavation unit (unit 1). Figure 5.2 shows how the number of identified specimens for each of these species was spatially distributed within Levels 2 and 3 of H2.

Within Level 2, all taxa had fewer than nine specimens identified from any one excavation unit, with the exception of caribou remains, where a concentration of 227

specimens were recovered from the eastern lamp platform area (unit 42). Red fox, polar bear and walrus remains occurred exclusively in this lamp platform area, while dog and ringed seal remains occurred both here and in other parts of the house. The only remains identified from the western lobe of the house were ringed seal and caribou. No remains were identified near the lintels, and the entrance tunnel units contained caribou remains exclusively. The only identified harp seal remains were recovered from the alcove in the entrance tunnel, where the remains of dog, ringed seal and caribou were also recovered. The midden unit contained dog, ringed seal and caribou remains.



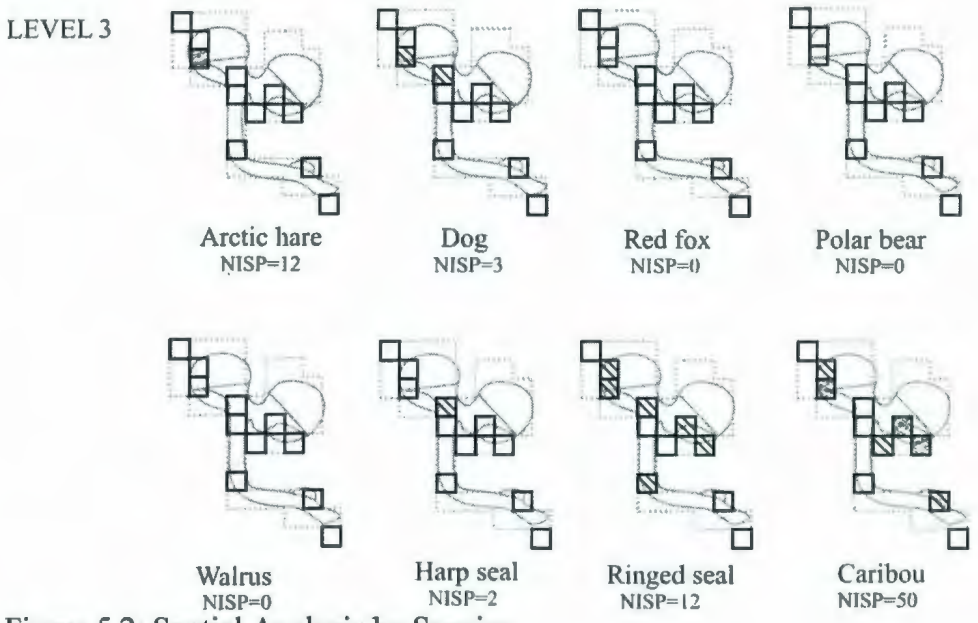


Figure 5.2: Spatial Analysis by Species

The spatial placement of the Level 2 materials suggests that the remains of most species were deposited in the approximate centre of the dwelling depression, with the remains of those species that were procured more frequently also found outside of this central area, mostly toward the southward-sloping entrance tunnel. No species appears to be exclusively associated with another species or with a particular architectural feature. It is possible that the majority of faunal remains were intentionally deposited near the eastern lamp platform and associated floor (unit 42) after the dwelling was abandoned, however there should have been more faunal remains recovered from the other unit analysed from this lamp platform (unit 52) if this were so.

Only five taxa were identified within the Level 3 fauna. A concentration of 12 arctic hare specimens that represented one individual was recovered from the western lamp platform/sleeping platform area (unit 20). Dog remains also occurred in this area and in the nearby lintel area (unit 31). This lintel area also produced the only harp seal

specimens. More caribou remains were recovered than ringed seal ones, however both were located throughout the interior of the dwelling, particularly near the lamp platforms (units 20, 42 and 52). The only taxon identified in the entrance tunnel was ringed seal and the alcove area contained only caribou remains. Red fox, polar bear and walrus remains were not observed in the Level 3 assemblage. Unlike in Level 2 where the remains of all but one taxon occurred near the eastern lamp platform, this area was not the focal depositional area in Level 3. Instead, all species occurred within the western lobe of the dwelling, and the remains of those that the precontact Inuit procured more frequently occurred in the eastern lobe and entrance tunnel. This suggests that perhaps the western lamp platform area was the primary cooking and processing area, and that the eastern one was either reserved for the processing of more commonly procured species or was generally less utilised during the final occupation of the dwelling. The entrance tunnel seems to have been kept relatively clear of animal remains.

While an examination of the spatial location of the various species recovered within H2 showed some interesting aspects of discard and deposition, it is possible that the focus of inquiry was too narrow to reveal overall trends in the connections between fauna and architecture. The next section re-examines the faunal remains using a broader definition of faunal categories.

5.2.2 *Spatial Analysis by General Faunal Categories*

For this analysis, taxa were classified based on similarities in their general appearance and behaviour, and NISP was utilised to quantify these. Five categories were used: canid, seal, caribou, bird and fish. Canid refers to all the specimens identified as

dog, wolf, fox or unknown canid. As there are no other ungulate species that inhabit Nachvak Fiord, and because caribou remains represented a significant component of the identified fauna, they represented their own category. Figure 5.3 shows how the NISP for each of these categories was spatially distributed within Levels 2 and 3 of H2.

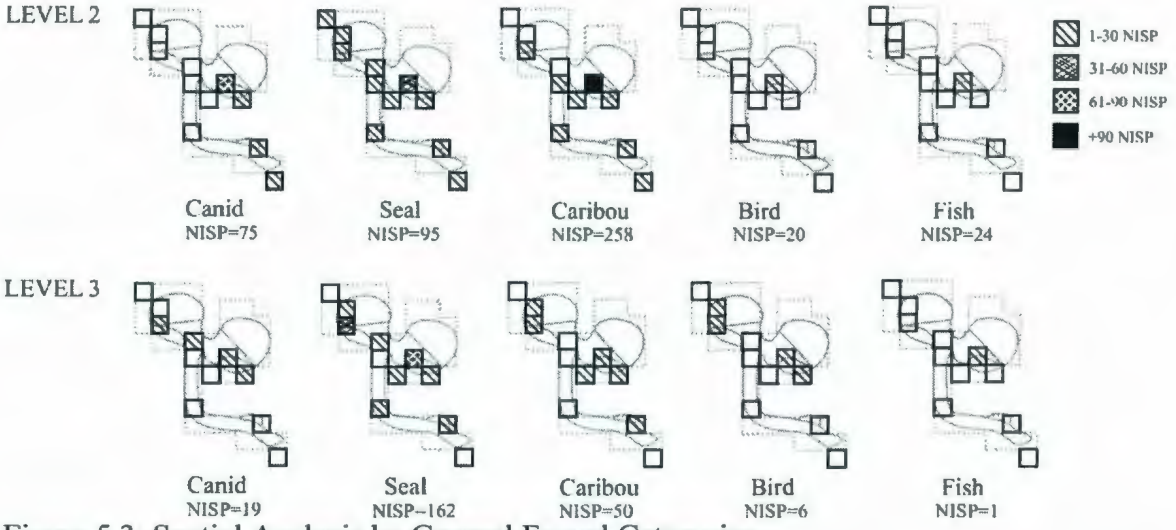


Figure 5.3: Spatial Analysis by General Faunal Categories

Within Level 2, the majority of canid remains were recovered from the eastern lamp platform/floor area (units 42 and 52), with more remains occurring in the alcove of the entrance tunnel (unit 80) and midden (unit 99). Seal was the only faunal category to have remains recovered from every unit in the dwelling, however all units but the eastern lamp platform had a NISP of less than 30. Caribou was the only taxon to have a NISP of greater than 90, which occurred in the eastern lamp platform area; caribou remains represented no more than one individual in all other parts of the dwelling. There were only three areas in which seal remains were recovered but not caribou: the northern wall (unit 1) and sleeping platform (unit 11), and the lintel area (unit 31). Birds and fish were recovered exclusively from the eastern lamp platform area. The spatial placement of the

Level 2 generalised fauna reveals that many of the remains were deposited in proximity to the eastern lamp platform and floor are, which is the approximate centre of the dwelling depression. The remains of small-sized fauna (birds and fish) remained concentrated in this central area, while those of slightly larger animals (canids) extended towards the entrance tunnel. Caribou was the most frequently occurring taxon in the H2 assemblage, with 258 specimens identified in Level 2, and thus it is interesting that while caribou remains extended towards the entrance tunnel from the eastern lamp platform concentration, they did not extend towards the northern sleeping platform, as the seal remains did. There were 96 seal specimens identified in Level 2, most of which represented small-sized seals, and so it was unexpected that so few remains, when compared to the numbers of caribou, would be associated with so much more of the dwelling. It seems that caribou remains were intentionally deposited in one general area (unit 42), perhaps because they are terrestrial and not a focal species of winter, while the remains of small seals, which were most abundant animals present at the site during winter, existed everywhere. Canid remains show a similar pattern to that of caribou, in that the majority are localised near the eastern lamp platform with some spread of smaller elements toward the entrance tunnel. Further analyses of excavation units adjacent to unit 42 would reveal if this pattern extends into the eastern house lobe.

Within Level 3, most faunal remains were deposited in proximity to the lamp platform areas (units 20, 42 and 52). Canids had approximately equal numbers of remains identified from both lamp platform areas, and no remains were identified in the units outside of the house interior. Bird and fish were also identified exclusively within

the living area of the house, however bird remains were recovered from both lamp platform areas while those of fish were identified exclusively from the eastern one. Caribou remains were not strongly associated with either lamp platform area in Level 3. Seal remains were identified predominantly in the vicinity of the lamp platforms, but also near the sleeping platform, wall, entrance tunnel, and alcove. The greater incidence of seal over caribou in Level 3 reflects the fact that this assemblage was comprised of 162 seal remains and only 50 caribou. The spatial location of the Level 3 fauna suggests that both lamp platform areas were utilised to process all animal remains acquired by the household. No faunal category was restricted to a particular part of the dwelling: there was only one fish bone recovered near the eastern lamp platform area. As expected, most of the faunal remains were identified from within the dwelling interior, where animals would have been processed for meat consumption and raw materials.

The spatial analysis of the generalised faunal categories shows a disposal pattern that corresponds to the function of the various architectural areas. There also appears to be intentional, localised deposition of caribou and canid remains in Level 2.

5.2.3 *Spatial Analysis by Body Parts*

For this analysis, the parts of the body were divided into five segments: cranium, forelimb, hind limb, trunk and feet/flipper. While some researchers further subdivide some of these segments, such as by separating ribs from vertebra, it was thought that more broadly defined categories would better correspond to the butchery practices of the various animals identified in H2 (e.g. Waguespack 2002:399). Minimum Number of Animal Units (MAU) was calculated for each skeletal segment, using a complex method

similar to that for calculating MNI. MAU is an element count that is normalised by the number of times the element occurs in the skeleton of each taxon (Grayson 1984:89). It reflects the fact that skeletons tend not to occur in their entirety, and that some body parts may be heavily utilised while others are not. Figure 5.4 presents the spatial locations of these body segments within Levels 2 and 3 of H2.

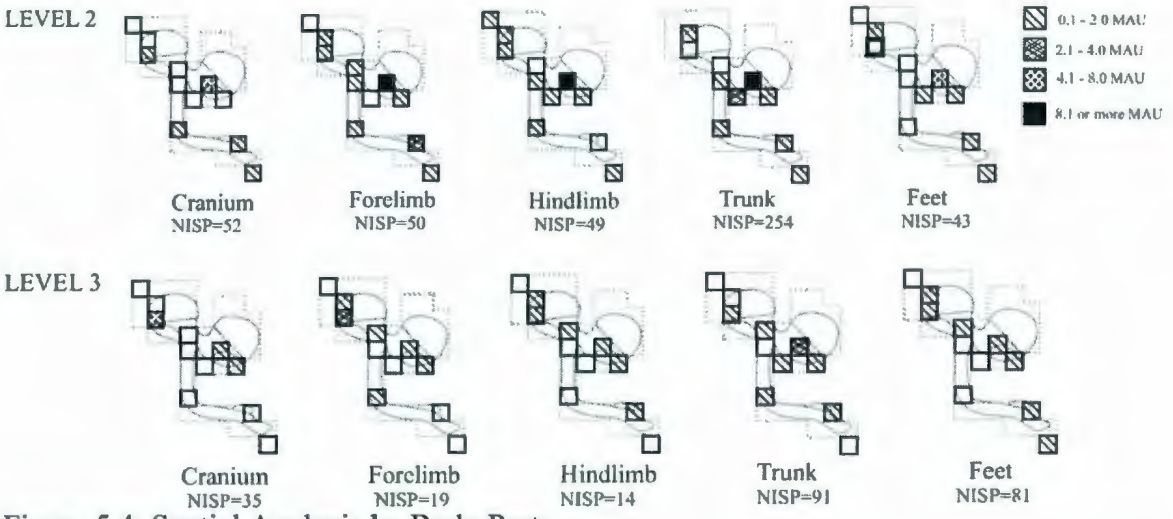


Figure 5.4: Spatial Analysis by Body Parts

Within Level 2, as with the previous spatial analyses, the majority of skeletal segments were recovered near the eastern lamp platform area (units 42 and 52). Forelimb, hind limb and trunk segments were most frequently identified from this area. These segments were also identified in small quantities throughout much of the dwelling and entrance tunnel. A concentration of cranial remains existed near the eastern lamp platform area, with the rest of the cranial bones being identified in the western lamp platform area (unit 20), entrance tunnel (units 40 and 67), alcove (unit 80) and midden (unit 99). Foot bones were also concentrated near this lamp platform area, but were identified near the sleeping platform, alcove and midden as well. The spatial distribution

of the Level 2 skeletal segments demonstrates that all parts of the animals were utilised, but preference existed for the forelimbs, hind limbs and trunk segments, which provided the most meat and raw materials. The segments that did not occur as often (crania and feet) were deposited in the same places as those that occurred more commonly, suggesting that the spatial separation of these five body segments during intentional discard was not practiced.

Within Level 3, cranial remains were concentrated near the western lamp platform (unit 20), but also occurred in the eastern lamp platform area (units 42 and 52). Hind limb and feet segments had the same spatial distribution, with the exception that feet were also identified in the midden. Forelimb segments were identified most frequently near the western lamp platform area while trunk segments were identified near the eastern one. The spatial distribution of the Level 3 fauna shows that cranial remains were the most frequently occurring body segment, and the concentration of these remains near the western lamp platform suggests that there may have been an intentional association of crania with this area of the house. There were at least six species represented in the cranial bone concentration: arctic hare, bear, dog, fox, caribou and ringed seal. The other body segments do not appear to be associated with any particular architectural area. Both lamp platform areas contained remains from all five body segment categories, and while forelimbs were as prominent in the west as trunks were in the east, their small quantities, as well as their presence in many other parts of the dwelling, suggest that this reflects depositional happenstance, and not intentional behaviour. The dearth of faunal remains recovered from the wall units (units 1 and 50) suggests that carcasses were not processed

near the walls, as more bones would likely be found among the cracks between wall and floor.

5.2.4 *Spatial Analysis by Inferred Season*

House 2 is a semi-subterranean dwelling that was occupied during the cold months of the year, however not all food consumed during the occupation of the dwelling was acquired during the winter. The practice of storing food allowed precontact peoples to consume food procured during other times of the year, as a means of circumventing resource instability and stress (Minc and Smith 1989). This section examines the degree to which the spatial location of the faunal remains related to the inferred season of procurement of each species. Table 5.2 shows the classification of the H2 taxa by the inferred season of procurement. Season of procurement for each species was inferred from the age-at-death presented earlier, and based on the season in which they were known to be most often hunted ethnographically (Brice-Bennett 1977). The majority of taxa identified from H2 were procured during the winter. Some taxa were likely procured during more than one season. These include polar bears, which were hunted during the winter and summer, harp seals, which were hunted during their spring and autumn migrations, and ptarmigan, which were hunted during the winter and autumn.

Table 5.2: Classification of H2 Taxa by Inferred Season of Procurement

Winter	Spring	Summer	Autumn
Arctic hare	Beluga whale	Black/Polar bear	Bowhead whale
Arctic/Red fox	Walrus	Caribou	Harp seal
Bearded seal	Harp seal	Cod	Ptarmigan
Ringed seal	Gull	Char	
Polar bear			
Ptarmigan			

Figure 5.5 shows how the NISP of the faunal remains was distributed by inferred season of procurement within Levels 2 and 3 of H2.

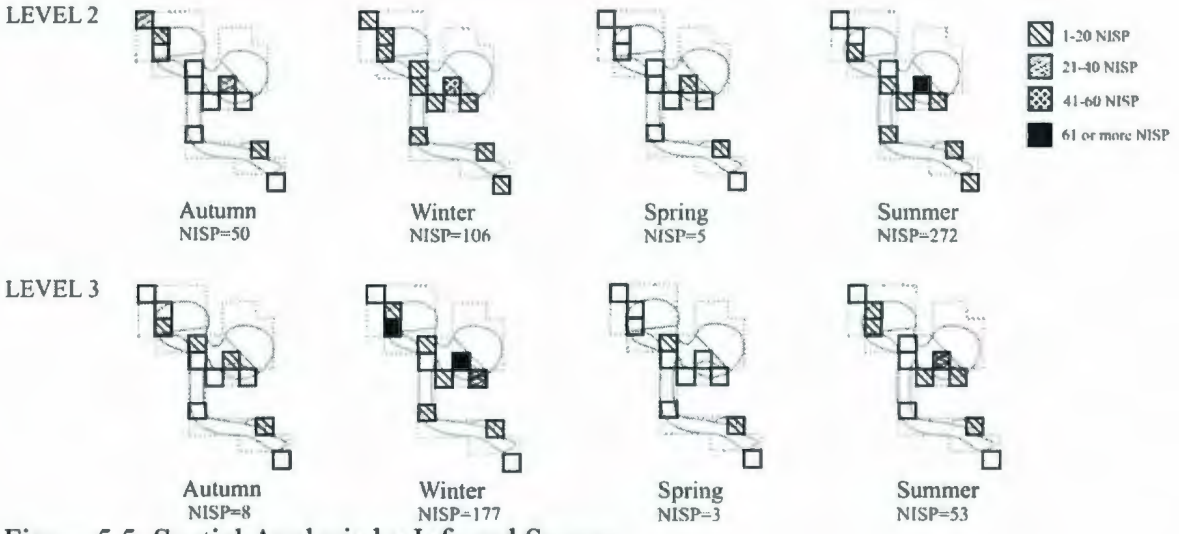


Figure 5.5: Spatial Analysis by Inferred Season

Within Level 2, the remains of autumn taxa were deposited in proximity to the eastern lamp platform (unit 42), the north end of the house and in the entrance tunnel alcove (unit 80). As expected, winter species were by far the most commonly identified in Level 2, with every unit producing at least one specimen. The remains of most winter taxa were deposited near the eastern lamp platform. There were very few spring species identified, but those that did occur were recovered from the eastern platform region (unit 42) and the entrance tunnel alcove. Summer species were almost as prominently identified as were the winter ones, with most summer remains occurring near the eastern lamp platform. The preponderance of summer and winter species may suggest that the inhabitants of Nachvak Village deposited the remains of several individuals procured during the summer into the central area of this dwelling, perhaps after H2 was abandoned. However, it is unknown whether these remains were retrieved from caches

and consumed during the cold months, or whether the site was occupied occasionally during parts of the summer.

There were few individuals procured in the autumn that were recovered from Level 3, but those that did occur were located in the area between the two lamp platforms (units 20, 31 and 42), and in the alcove of the entrance tunnel (unit 80). Winter taxa were heavily concentrated around both lamp platforms. There were only one or two bones from the spring, recovered in proximity to the lintel and entrance tunnel alcove. There were fewer summer remains identified in Level 3 than in Level 2. These were recovered from predominantly near the lamp platforms. The preponderance of winter fauna verifies that H2 was occupied mainly during the winter, as the majority of animal remains processed were procured during this season. The concentration of bones observed in Level 2 in proximity to the eastern lamp platform continued for most seasons into Level 3, however the western platform area also contained an abundance of faunal material. The entrance tunnel had few identifiable faunal materials. The alcove nook contained individuals procured during all seasons. As autumn and spring prey species were associated with winter and summer ones in most parts of the dwelling, there does not appear to be the intentional separation of animal bones based on season of procurement.

5.2.5 *Spatial Analysis by Natural Realm*

Whereas economy played an important role in the spatial patterning of faunal remains when organised by season of procurement, at least one researcher has suggested that the natural realm typically associated with a given species, such as land, air or water, may relate to the conceptual organisation of space (DeBoer 1997). For this analysis, taxa

were classified based on the natural realm that they habitually occupy. Table 5.3 shows this classification for H2 taxa. In the few instances where a taxon occupies more than one realm, such as the affinity of the polar bear to both land and sea and the ptarmigan to both land and air, it was assigned to both categories.

Table 5.3: Classification of H2 Taxa by Natural Realm

Land	Sea	Air
Hare	Whale	Ptarmigan
Dog/Wolf/Fox	Polar bear	Gull
Bear	Walrus	
Caribou	Seal	
Ptarmigan	Fish	

Figure 5.6 shows the spatial distribution of the NISP of fauna based on these natural realms within Levels 2 and 3 of H2.

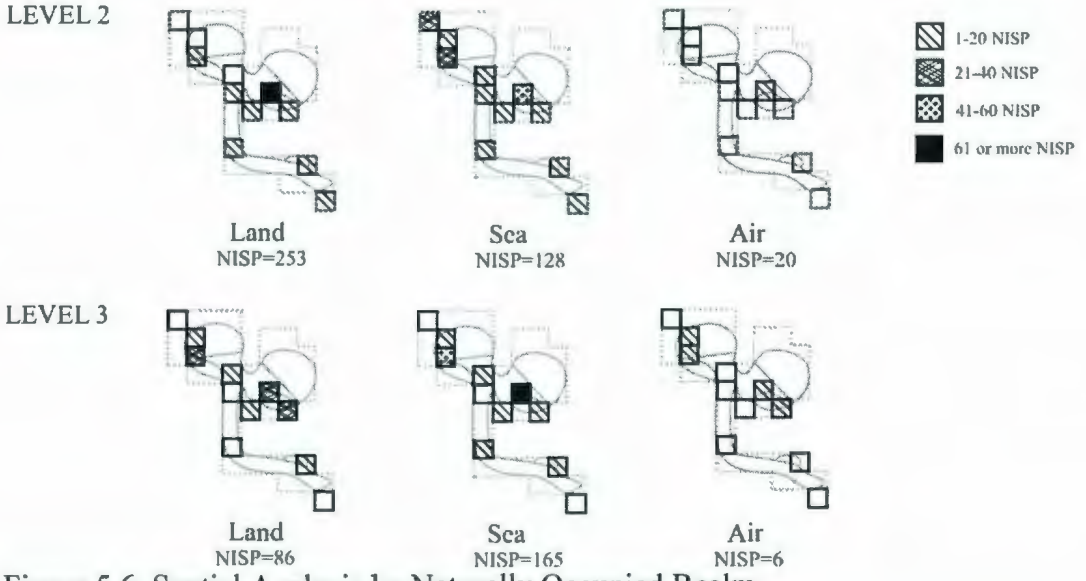


Figure 5.6: Spatial Analysis by Naturally Occupied Realm

The majority of faunal remains identified from Level 2 derived from the sea. This is not surprising considering that sea mammals, particularly seals and whales, were very important to the precontact Inuit for providing food and raw materials. Sea-based taxa

were recovered from all units, and most were recovered in proximity to the eastern lamp platform (unit 42 and 52) and associated floor and walls (unit 50). Many sea-based remains were also recovered from the far north end of the house, which was devoid of land and air-based taxa. Land-based taxa were recovered mainly from the eastern lamp platform area, with others being recovered near the entrance tunnel and midden. There were only 20 ones identified from air-borne taxa, and these were all recovered form the eastern lamp platform area. The Level 2 spatial deposition of faunal remains based on naturally occupied realm is very similar to the other analyses of these materials: most taxa from all realms were deposited near the eastern lamp platform area, likely after the dwelling had been abandoned. The remains of air-based taxa were restricted to this area, likely reflecting the deposition of reasonably whole carcasses, while the remains of land-based taxa extended toward the entrance tunnel. The remains of sea-based taxa occurred in two concentrations: one near the eastern lamp platform and sleeping area, and the other near the western lamp platform. These clumps may reflect separate discard incidents or may just be the result of taphonomic processes that spread these remains. The inclusion of more excavation units into the spatial analysis would reveal if the observed patterning represents meaningful depositional behaviour or if it is a result of sampling.

Within Level 3, the remains of most land-based taxa occurred around both lamp platforms, with fewer specimens being identified near the lintel and alcove areas. The remains of sea-based taxa occurred in largest numbers both lamp platform. The remains of air-based taxa were found exclusively near the lamp platforms and associated areas. This localisation around the lamp platforms likely suggests that birds were processed as

complete or nearly complete carcasses. Land and sea taxa co-occurred in almost every unit.

5.2.6 *Spatial Analysis by Cut Marks*

There were few observable cut marks on the H2 faunal materials, which means that any trends observed here are unlikely to reflect meaningful behaviour. Figure 5.7 shows the number of identified specimens exhibiting cut marks within Levels 2 and 3.

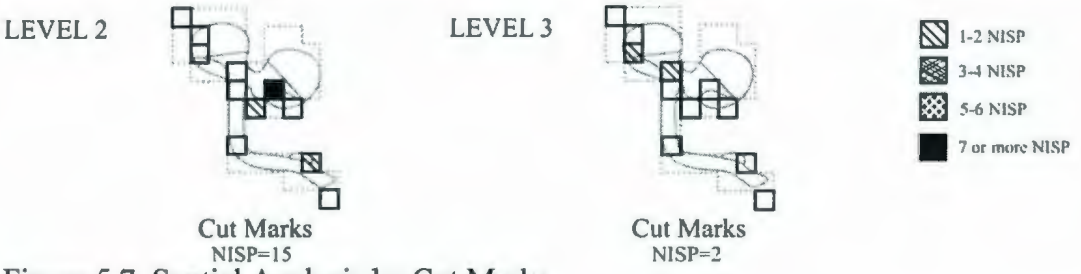


Figure 5.7: Spatial Analysis by Cut Marks

In Level 2, most specimens exhibiting cut marks occurred in the eastern lamp platform area. There were 13 cut specimens recovered from unit 42. Other cut bones were recovered from the wall (unit 50) and the entrance tunnel alcove (unit 80). This suggests that a relatively large amount of material was processed and discarded in the approximate centre of the dwelling after H2 was abandoned. The localisation of most of the cut bone around the area of the eastern lamp platform suggests that either cut bone was intentionally deposited here or, more likely, that this could reflect only one depositional event.

There were even fewer cut marks observable on the Level 3 remains. There was one cut bone identified from the western lamp platform area (unit 20) and one other recovered from the lintel area (unit 31). It was unexpected that the eastern lamp platform area produced no cut bone, considering that many faunal remains were recovered from

this area in Level 3. The lack of more cut material throughout the house suggests that processing techniques may have obliterated the visibility of these marks, or that butchery occurred elsewhere. Processing technologies may have shifted from stone to metal blades during the later part of the dwelling occupation, and as cut marks made with metal knives are thinner, they are more difficult to see without a microscope (Greenfield 1999). It is unlikely that there is any intentional association between cut bone and the western lobe of the house, as such a meaningful association would have produced more visibly cut bone.

5.2.8 *Summary of Spatial Analysis*

In general, the areas associated with the lamp platforms had the highest frequencies of identifiable animal remains and the walls and sleeping platform had the fewest. The entrance tunnels areas also produced few identifiable elements, which could reflect a desire to keep the entryway clear or perhaps any dogs inhabiting this area destroyed all such remains. The alcove of the entrance tunnel and the midden produced similar amounts of identifiable fauna, which was more than that in most parts of the dwelling.

In terms of observable patterns of spatial deposition, the majority of remains identified in Level 2 were concentrated in the area of the eastern lamp platform. It is possible that the faunal remains were discarded in this area with the intention to associate them with the lamp platform, but it is more likely that they were discarded in this area because it was the approximate centre of the dwelling and the focal work area. The faunal remains of the most frequently occurring taxa, caribou and seals, extended from

this central depositional area toward the entrance tunnel, and in some instances toward the north end of the dwelling. The remains of all body parts were found in association with each other, however forelimbs, hind limbs and trunk elements were the most frequently occurring segments. The majority of the specimens identified were procured in the winter or summer. The remains of animals that occupy land, air and water were all spatially co-mingled.

Level 3 produced patterns of faunal deposition that were much different from those observed in Level 2. There were fewer species identified in Level 3 than in Level 2. The eastern and western lamp platform areas produced the highest frequencies of faunal remains, which reflects the fact that these areas were used for cooking food. No particular taxon was spatially associated with a particular architectural area, however cranial remains were exclusively recovered from the lamp platform areas. In particular, cranial remains were recovered in high frequencies from the western lamp platform, suggesting that perhaps this association is meaningful. As with Level 2, the majority of faunal remains were typically procured during the winter and summer. The remains of land and sea-based taxa were identified in the same architectural areas, and the remains of air-based taxa were localised near the lamp platforms. This separation could be intentional, but the remains from additional excavations would need to be analysed to confirm or refute this.

Given that taphonomic agents can easily alter the spatial patterning of archaeological bone, it is possible that non-human agents altered the distribution of the remains to the point of obscuring some of the depositional patterning (Marean and

Bertino 1994:749). Differences in preservation could explain why some units contained many faunal remains while adjacent ones contained none. The association of many faunal remains with lamp platforms in H2 could reflect the presence of the preserving oils of sea mammals, which were used to heat the lamps and cook food. In addition to issues of preservation, carnivores are another factor that likely had an effect on the spatial patterning of the faunal remains. An investigation into the degree of carnivore impact is discussed in the next section.

5.2.9 *Carnivores*

Carnivores are well-known modifiers, destroyers and removers of bone from its original place of deposition at an archaeological site (Kent 1981; Marean and Bertino 1994). The precontact Inuit kept dogs for several purposes relating mainly to hunting and transportation, and their presence is attested to in the faunal assemblages at both Nachvak Village and Kongu. One method used to infer the degree to which these destructive agents may have altered the position of the faunal remains involves examining the abundance of carnivore-gnawed remains. While it is acknowledged that carnivores can alter the spatial positioning of faunal remains without leaving gnaw marks, there are few ways to approximate their effect without the use of gnaw marks (Janes 1983:24; Kent 1981:367).

Table 5.4 shows the location of carnivore gnaw marks on the fauna recovered from Level 3. The remains recovered from Level 2 also exhibited gnaw marks, however it is unknown whether carnivores produced such marks before the bones were deposited in the H2 depression, or if they made them after the bones were already discarded. For

each architectural area listed, the general body parts exhibiting cut marks are named for each taxon.

Table 5.4: Location of Carnivore Gnaw Marks on H2, Level 3 Fauna

	Canid	Dog	Small seal	Ringed seal	Harp seal	Caribou
Sleeping platform				hind limb		hind leg
Western lamp platform			hind limb			rib, hind leg
Lintel	foot	foot	sternum, rib, hind limb, flipper		fore limb	
Eastern lamp platform			rib, spine, fore limb, flipper			rib, hind leg, foot
Entrance tunnel				fore limb		
Alcove						pelvis
NISP	1	1	13	2	1	8

Carnivore gnaw marks were observed on remains recovered from the majority of excavation units included in the analysis. Specifically, gnawed remains were recovered from the sleeping platform, lintel, eastern and western lamp platforms, entrance tunnel and alcove. Gnawing was observed on canid (probably dog and wolf), dog, small seal, ringed seal, harp seal and caribou remains. Predominantly, foot/flipper and fore/hind limb elements exhibited gnaw marks, but rib, sternum and pelvic elements were also affected. The location of the carnivore gnawing in H2 demonstrates that carnivores targeted both land and sea mammal remains, and that no part of the house was left untouched. This suggests that the spatial location of the faunal remains was somewhat disturbed and that, depending on the severity of this disturbance, it is likely that other spatial associations may have been observable between the faunal remains and architectural areas in the absence of such carnivore activity.

5.4 Conclusions

An analysis of the spatial relationships between faunal remains and dwelling

structural architecture agrees with previous research that demonstrates that artefact and ecofact discard is not a random process (Foley 1981:165). By investigating the spatial deposition of faunal remains in terms of several different assemblages, some interesting patterns emerge that may reflect precontact Inuit depositional behaviour. Whereas the distribution of the Level 3 remains reflects disposal associated with daily household activities, the Level 2 faunal distribution is more likely to represent final, intentional disposal. This explains why each variant of the spatial analysis produced very similar results for Level 2: the majority of these remains were discarded in a localised area of the H2 dwelling depression, reflecting post-occupational deposition. The Level 3 spatial distribution demonstrated that most species were discarded in the vicinity of the lamp platforms, reflecting the function of these as food processing areas during dwelling occupation.

In the H2 assemblage, an array of sea and land mammal remains exhibited carnivore gnaw marks, and these were recovered from many architectural areas and on most types of body parts. To some degree, this suggests that the spatial placement of the faunal remains in this assemblage does not reflect original deposition, but instead reflects the work of taphonomic agents, particularly carnivores. In addition, the faunal assemblages, as defined in terms of the natural layers excavated, likely do not reflect discrete occupational episodes but rather repeated occupations and varied activities, which could also obscure the observation of spatial patterning (Binford 1982:17). Lastly, some ritualised disposal practices, such as returning sea mammal bones to the sea to encourage future acquisition of these animals, may have taken place away from the

dwelling and midden, and would be more difficult to observe archaeologically (Møller Hansen 2003).

Chapter 6

Mythology and the Classification System

6.1 Introduction

Mythology is an extremely important cultural force that serves the purposes of expressing and enhancing beliefs, safeguarding and dictating morality, and determining practical rules for the guidance of a cultural group (Malinowski 1971:19). Through myths, people explain, legitimise or criticise aspects of their world, which in turn assist in the creation of an identity that is conceptualised in relation to other identities (van Londen 1999:111). Among the Inuit, mythology models how time and space were articulated in order to achieve the current perception of reality (Oosten and Laugrand 2004:86). For many myths, this involves the evolution of the relationships between people and animals. In the Inuit and Yupik past, and even for some groups in the present (e.g. Fienup-Riordan 1990; Wenzel 1991), animals possessed an *inua*, an owner that could appear as a human being, that could live in communities among the Inuit, and that could engage in all manner of physical and emotional relationships with humans (Oosten and Laugrand 2004:86). The interactions between humans and *inua* in the past gave rise to relationships for which taboos and ritual behaviours existed that were necessary for the maintenance of the relationships. By sharing the mythical accounts of human-animal relationships, the Inuit have a unifying understanding of their identity within the world, can articulate appropriate behaviours for the continuance of harmonious relations with animals and, when necessary, can create acceptable contingency plans in times of stress (Minc 1986).

The Inuit do not perceive of myths as the literal account of historical events, but instead as reinforcements of cultural beliefs and traditions that are acknowledged by all (Champagne 1992:9). As such, the ways in which animals are described in myths should relate in some way to historic Inuit thoughts about how animals relate to each other and to humans. As the historic Inuit are the descendents of the precontact Inuit of Labrador, the direct historical approach argues that ethnographically recorded myths should be somewhat comparable to the ancestral mythology, and will serve as a suitable replacement for the lack of records of prehistoric myths (e.g. Baerreis 1961; Minc 1986; Minc and Smith 1989).

6.2 Mythology

Early ethnographers and other arctic adventurers compiled the myths and folk tales told to them during their prolonged stays with the historic Inuit. The act of writing down these myths and translating them from their original language into various European ones no doubt changed them from their original oral versions. The ethnographers sought to clarify certain aspects of the myths, for which the Inuit would have needed no explanation, and syntax and phrasing were changed to suit a Western audience. In particular, the myths compiled by Rink (1974:331) include sentences such as "When thou thinkest him to be within thy aim…", which are not likely a reflection of the manner in which the myths were told to him. Nonetheless, for the purposes of this analysis, these myths are considered reasonable, if approximate, transcriptions of historic Inuit tales, and are used in conjunction with modern myth compilations, some of which were authored by Inuit from northern Labrador, to provide information on the

relationships that might have existed between humans and animals in the past.

The myths contained in the compilations were systematically reviewed, and those that were included in the analysis had human-animal or animal-animal relationships as their focal point. The majority of myths were entitled "Animal A and Animal B" or "The Origin of Animal A", wherein the animals are anthropomorphised actors whose past behaviours had consequences for the current condition of both the animals and humans. Considering that the current geo-political boundaries that exist within the Labrador region did not exist in the past, myths from northern Labrador, Ungava Bay, northeastern Hudson Bay, Baffin Island and Greenland were used in this analysis. Table 6.1 lists the geographical location, title, and source for each myth included in the analysis. Each myth is numbered, and these numbers are referred to in the discussions below. Some myths were recorded in more than one source (1 and 28, 16 and 39, and 6, 45 and 67), and these variants are all included in the analysis as they provide information on the regional extent of a particular myth, as well as detailing the degree to which the composition of a particular myth tended to vary. As with any story, the myths likely reflect regional preferences as well as those of individual storytellers, and thus the versions of each myth should not be considered to be the one true version of that myth for a particular region.

The myths were first examined for associations among species. Table 6.2 lists the animals that occurred with at least one other taxon in the myths, with 'x' denoting the presence of an association. The associations denoted by 'x' did not necessarily all occur

Table 6.1: Myths Used in Analysis

Location	Number	Myth Title	Source	Page
Northern Labrador	1	Origin of Man and the Animals	Hawkes (1916)	152
"	2	The Place Where the Caribou Live	"	154
"	3	How the Trout was Made	"	155
"	4	The Quarrel of the Crow and the Gull	"	155
"	5	The Girl Who Married a Whale	"	155-156
"	6	The Story of the Fox Wife	"	156-157
"	7	The Story of the Lame Hunter	"	159
"	8	Origin of the Walrus and Caribou	"	160
"	9	The Owl and the Raven	"	160
"	10	The Origins of the Sea-Pigeon	"	161
"	11	How the Caribou Lost Their Large Eyes	"	161-162
"	12	The Caterpillar	Blake (2001)	18-19
NE Hudson Bay	13	The One Who Turned into a Wolf	Nungak and Arima (1969)	27-29
"	14	The Woman and the Caterpillar	"	43
"	15	The Hawk and the Goose	"	45
"	16	The Owl and the Lemming	"	47
"	17	Lumaaq	"	49-51
"	18	The Old Woman Who Killed a Bear	"	67
"	19	The Poor Boy Who Tossed a Seal Femur	"	105
"	20	The Seagull and the Kutyaunaq	"	107
"	21	The Man Who Mated Himself With a Sea-Fowl	"	145-148
Greenland	22	The Visiting Animals	Rink (1974)[1875]	450
"	23	The Bird's Cliff	"	451
"	24	The Revenging Animals	"	456-457
"	25	The Grateful Bear	"	462
"	26	The Amarok	"	464
"	27	The Bear Goes on His Long, Solitary Journey	Norman (1990)	147-148
Baffin Island	28	The Sedna Myth	Boas (1907)	163-165
"	29	The Woman Who Married the Dog	"	165-167
"	30	Origin of the Walrus and of the Caribou	"	167-168
"	31	Origin of the Narwhal	"	168-171
"	32	Origin of the Agdlaq	"	171-172
"	33	The Spider	"	193

Location	Number	Myth Title	Source	Page
Baffin Island	34	The Monster Gull	Boas (1907)	195
"	35	The Foxes	"	215-216
"	36	The Raven and the Gulls	"	216-217
"	37	The Girls Who Married Animals	"	217-218
"	38	Origin of the Red-Phalarope and the Web-Footed Loon	"	218-219
"	39	The Owl and the Lemming	"	219
"	40	The Bear and the Caribou	"	220
"	41	The Ptarmigan and the Snow Bunting	"	220
"	42	The Owl and the Raven	"	220-221
"	43	The Foxes	"	221-222
"	44	A She-Bear and Her Cub	"	222
"	45	The Man Who Married the Fox	"	222-226
"	46	The Insects	"	226-227
"	47	The Boy Who Lived on Ravens	"	227-228
"	48	The Soul Which Had Entered a Fox	"	234
"	49	The Woman Who Became a Bear and Killed Her Enemy	"	252-254
"	50	The Boy Who Harpooned the Whale	"	255-256
"	51	The Bear that was Transformed into Geese	"	256-257
"	52	Tale of an Agdlaq	"	262-263
"	53	Dialogue Between Two Ravens	"	301-302
"	54	The Ptarmigan	"	302-303
"	55	The Song of the Raven	"	303
"	56	The Fox	"	303
"	57	The Woman Who Became a Raven	"	303-304
Ungava Bay	58	Origin of the Guillemots	Turner (1979)	98
"	59	Origin of the Raven	"	98
"	60	Origin of the Quadrangular Spots on the Loon's Back	"	98-99
"	61	Origin of the Gulls	"	99
"	62	Origin of the Hawks	"	99
"	63	Origin of the Swallows	"	99
"	64	The Hare	"	99
"	65	The Wolf	"	99
"	66	Origin of the Mosquitoes	"	100
"	67	Story of the Man and his Fox Wife	"	100

within one myth. Rather, Table 6.2 documents the overall trends in animal associations.

Most of the associations described in the myths mirrored those in nature: birds were associated with other birds, sea creatures with other sea creatures and land mammals with other land mammals. Exceptions to this are seen with the association of foxes with ravens, lemmings with owls, polar bears with geese and ptarmigan, seals with mergansers, and walruses with caribou. In some of these instances, such as the lemming and owl, the association is clearly one of predator and prey. With others, the animals are perceived to share similar characteristics, such as the intelligence of the fox and raven, and their behaviour as mobile scavengers. The association of caribou and walrus is interesting, as these appear to have very little in common. Seals were associated with six other taxa, which was the greatest number of associations. They were associated with polar bears, whales (inferred to be bowheads), walruses and other seals in the variants of the creation myth (numbers 1 and 28), with mergansers in a myth about getting revenge on wasteful Inuit (number 24) and with ptarmigan in a myth where these taxa provide food for polar bears (number 25). Many individuals occurred without any others of their species, including black bears, ducks, geese, hares, hawks, lemmings, loons, mergansers, narwhals, owls, phalaropes, polar bears, snow buntings, spiders, walruses and whales. Other taxa, including caterpillars, guillemots, generic insects, mosquitoes, swallows, trout and wolves, occurred in the myths either by themselves or in association with humans, which seemed in contrast with their natural condition. These taxa were not included in Table 6.2.

Table 6.2: Animal Associations in Myths

	Black bear	Caribou	Duck	Fox	Goose	Gull	Hare	Hawk	Lemming	Loon	Merganser	Narwhal	Owl	Phalarope	Ptarmigan	Polar bear	Raven	Seal	Snow bunting	Spider	Walrus	Whale	TOTAL
Black bear		x																					1
Caribou	x	x		x			x														x		5
Duck						x																	1
Fox		x		x			x										x			x			5
Goose								x								x							2
Gull			x			x											x						3
Hare		x		x																			2
Hawk					x																		1
Lemming													x										1
Loon														x									1
Merganser																		x					1
Narwhal																						x	1
Owl									x								x						2
Phalarope										x													1
Ptarmigan															x	x		x	x				4
Polar bear					x										x			x			x		4
Raven				x		x							x				x						4
Seal											x				x	x		x			x	x	6
Snow bunting															x								1
Spider				x																			1
Walrus		x														x		x					3
Whale												x						x					2

x=presence

It was assumed that Lévi-Strauss's (1967) argument for the presence of opposing dualities in all facets of cognition was a suitable structure for this dataset, particularly because some of these, such as the land and sea dichotomy, were known to be observed by historic Inuit (McGhee 1977; Søby 1969). It was thought that an investigation into the prevalence of these conceptual dichotomies might reveal underlying aspects of Inuit thoughts regarding animals (Søby 1969). Table 6.3 shows the associations present in the myths between the taxa and the dichotomies. Clearly, the dichotomies listed in Table 6.3 are only a small subset of all those that exist in thought and language, however those listed represent the most frequently occurring oppositions perceived to exist in the mythology, and are among the most apt when discussing characteristics of animals (Oosten 1986). The male/female opposition refers to the gender of the animal while the men/women opposition refers to the gender of the humans associated with the animals. In addition, the animals listed in Table 6.3 do not represent all taxa that were mentioned in the myths. The most frequently occurring taxa were included, and so were taxa that occurred infrequently in the myths but frequently in the faunal assemblages. Not included in the table were geese, lemmings, mosquitoes, narwhals, phalaropes, snow buntings, spiders, swallows, and trout, because each was portrayed rarely and the analysis of dichotomies only revealed information about their habitat or physical appearance. The second-last row of Table 6.3 provides the total number of myths in which each taxon was described, and the last row provides the myth labels that correspond to those in Table 6.1.

Table 6.3: Dichotomies in Myths

	Raven	Polar Bear	Fox	Gull	Caribou	Owl	Whale	Wolf	Black Bear	Dog	Loon	Ptarmigan	Walrus	Caterpillar	Guillemot	Hare	Hawk	Insects	Seal	Duck	Merganser
Male	x	x	(x)	(x)	x		x			x	x	x		x		x	x				
Female	(x)		x	x		x		x	x		x	x					x				
Men	x	x	x		x		x	x			x								x	x	x
Women		x			x	x	x			x		x	x	x				x	x		
Black	x								x												
White		x		x		x															
Day		x	x	x				x			x				x		x	x		x	
Night					x																x
Water		x	(x)	x			x			x	x		x		x				x	x	
Land	x	x	x	x	x	x		x	x			x		x	x	x	x	x			x
Inside	x	(x)	x	x	x	x								x				x			x
Outside		x	x	x	x	x	x	x	x	x	x	x	x		x			x	x	x	
Strong		x			x		x	x	x		x										
Weak				x					x			x		x							
Passive	x		x		x					x		x				x					
Aggressive		x		x		x	x	x	x	(x)				x				x			x
Big		x			x	x	x	x	x												
Small			x											x		x					
Beautiful			x	x																	
Ugly														x						x	
Young	x	x								x		x		x							
Old	x					x		x				x									
Good		x									x							x			
Evil							x							x							
Summer	x	x		x	x			x	x	x		x		x				x		x	x
Winter	x	x	x		x		x				x			x		x					
Clean			x																		
Dirty	x																				
No. of myths	12	9	8	7	6	5	4	4	3	3	3	3	3	2	2	2	2	2	2	1	1
Sources	4, 9, 23, 36, 42, 45, 47, 53, 55, 57, 59, 60	7, 17, 18, 25, 27, 31, 44, 49, 51	6, 22, 35, 43, 45, 48, 56, 67	4, 20, 21, 23, 34, 36, 61	2, 8, 11, 22, 30, 40	9, 16, 37, 39, 42	5, 31, 37, 50	13, 26, 43, 65	32, 40, 52	1, 28, 29	17, 38, 60	25, 41, 54	1, 8, 30	12, 14	10, 58	22, 64	15, 62	45, 46	1, 19	21	24

x = presence

(x) = rare presence

For many of the taxa, there was at least one dichotomous pair that had both sides of the contradiction occurring in the myths. For example, loons were portrayed as being male in some of the myths and female in others. In some of these situations, one side of the contradiction occurred only once, and for these (x) denotes the rare occurrence. In most of these situations, the presence of both sides of the dichotomy likely relates to the fact that the taxon occurred frequently in the myths, and thus the inconsistencies in the portrayal of the animal could relate to individual storytelling preferences, ethnographer transcription biases, or simply a lack of a significant association with either side of the dichotomy. Those taxa that were associated with just one side of each dichotomy were often those that occurred infrequently in the myths. This results in a lower probability of contradictory portrayals, and thus may not reflect meaningful associations. The inconsistencies could also occur as part of the function of myths, which serve to create beliefs and illusions based on the resolution of contradictions of various irreconcilable and reconcilable dichotomous pairs (Lévi-Strauss 1967).

There are some interesting and likely meaningful associations revealed in Table 6.3. Ravens occurred in the myths more than any other taxa, and yet were portrayed rather consistently. They were portrayed as male in all cases except one, and were always associated with men. They were always black and living on land, which reflects their natural condition. They were always inside a dwelling and were always passive in relation to other species. Ravens were portrayed as being both young and old and living both in summer and in winter. The myths alluded to them being dirty when gulls and owls poured soot over them to make them black (numbers 9 and 42). In the myths, gulls

and owls often occupied the opposite side of dichotomies to that of ravens. Gulls were usually portrayed as female, and while the gender of owls was usually indeterminate, they were female when gender was articulated. Both were portrayed as being inside and outside of dwellings, and both were always portrayed as aggressive and confrontational. Gulls and owls also exhibited characteristics that related to their natural behaviours, such as the association of gulls with water and of owls with land. One of the Labrador myths asserted that ravens actually symbolised the Inuit and were contrasted with white birds, which symbolised white people (Hawkes 1916:155). Perhaps such an interpretation is valid for some historic contexts, but gulls, owls and ravens likely existed in the myths of the precontact Inuit as well, in which they could not have embodied this cultural opposition.

Polar bears and black bears exhibited some differences in the ways each were portrayed. Polar bears occurred in the myths more often than black bears did. Polar bears were always portrayed as male while black bears were female. Polar bears were associated with men and women while black bears were not associated with people at all. Black bears were always ascribed to the land while polar bears traversed both land and sea. The inclusion of polar bears as one of the species created by Sedna, the goddess of the sea, in northern Labrador mythology strengthens its associations with the sea. Both bears shared common characteristics relating to their natural appearance, such as their large size and aggressive tendencies. Two myths (numbers 7 and 18) discussed the defeat of a bear by a crippled individual, which suggests that this was a kind of ultimate hunting success (van Londen 1999:124). The contrasting depictions of polar and black

bears suggests that while the Inuit perceived similarities between them, they were generally seen as being very different.

Foxes were the third most frequently occurring taxon in the myths, and they seemed to symbolise women. They were often characterised as females who were married to human men. They were active on the land during the day and existed both inside and outside of the dwelling. They were small, passive, beautiful and clean. Foxes were portrayed as having harmonious relations with caribou, which symbolise the male domain in some parts of the arctic (van Londen 1999:124). Caribou were always portrayed as male and were active at night, which contrasts with the portrayed diurnal activity of the fox. They were always on land, existed inside and outside the dwelling, and were big and strong. In one myth, a caribou unexpectedly defeats a bear in a competition of strength (number 40), which is akin to the unexpected defeat of bears by crippled men and women (numbers 7 and 18). This could indicate a special connection between caribou and humans.

In the Sedna myth (number 28), walruses, seals and whales (likely bowheads) were all created from the finger joints of a woman who came to live at the bottom of the sea. These animals existed in the myths in much the same way as in nature: outside and in water, with various associations with men and women. Whales were portrayed anthropomorphically, as the jealous husband of a human woman who acts evilly towards his wife until she abandons him (numbers 5 and 37).

Wolves and dogs were portrayed as opposites. Wolves were always female and were hunted by men. Dogs were always male and were married to women. Wolves

always lived on land while dogs were associated with water through their association with Sedna. Dogs were portrayed as young, passive and obedient, with the exception of one myth wherein they maul a man (number 29). Wolves were always old and aggressive. Neither animal is associated with any other taxon, apart from humans.

Hares occurred infrequently in the myths, and may have symbolised underprivileged or otherwise unfortunate people. Hares were ill-treated by others due to what was construed as their odd physical appearance, and thus decided to live in isolation (number 64). In general, hares appeared as they do in nature: small, passive and land-based.

With the exceptions of the owls, gulls and ravens discussed above, birds generally appeared in the myths as they do in nature. While the loon had an instructive role in one myth by giving a blind boy his sight back (number 17), all other myths sought to explain the origin of their colourings and unusual vocal characteristics. Aside from being associated with water, daylight and the outside, loons were also associated with men, acts of goodness, strength and winter. Ptarmigan were associated with women, weakness, summer and land. The minimal portrayals of guillemots and hawks reflected basic aspects of their environment, namely that they are active during the day, and are found on land and outside. Ducks and mergansers were both associated with men and land, but were otherwise associated with opposite sides of the dichotomies: ducks were associated with day, water and outside while mergansers were associated with night, land and inside. Each was discussed in one myth only, and thus these associations are not strong.

The myths also included caterpillars and various insects as subject matter.

Caterpillars were parasites or pests that were associated with weaknesses in women (numbers 12 and 14). Generic insects were also associated with women, but were portrayed as being beneficial acquaintances (numbers 45 and 46).

6.3 Relationships between Faunal Remains and Myths

Using statistics, the relative frequencies of faunal remains from Nachvak Village and Kongu were compared with those of animals portrayed in the myths, with the intention of determining whether the animals hunted most frequently were also mentioned frequently in myths. As both the myth data and the faunal data represent categorical observations that do not approximate the normal distribution, Kendall's tau was the statistical test used on the data. This test ranks the values within each data set and then correlates the ranks, thereby producing a value between '1' and '-1' that expresses the degree of linearity of the relationship, where '1' indicates a positive, strong association (Holt 1996:94). Because the intention is to compare taxa at the level of the individual, the overall MNI was calculated for each taxon present at the sites. Nachvak Village and Kongu were considered separately to allow for comparison between these sites. Figure 6.1 shows a scatterplot of the relationship between the ranks of MNI and those of the animal frequencies in myth at Nachvak Village. Figure 6.2 shows the same relationship for the faunal remains from Kongu. Beneath each scatterplot is the correlation value and the p-value showing the significance of the relationship.

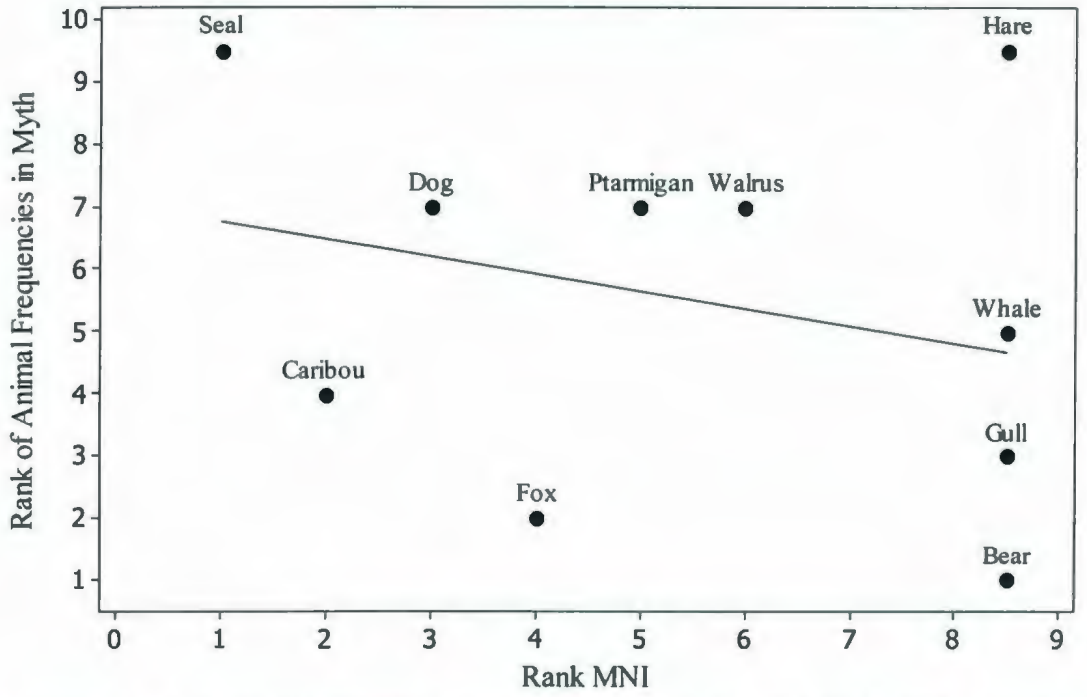


Figure 6.1: Relationship between Animal Frequencies in Myth and Faunal Assemblages at Nachvak Village; Kendall's Tau-a = 0.60, r = -0.276, p-value = 0.440

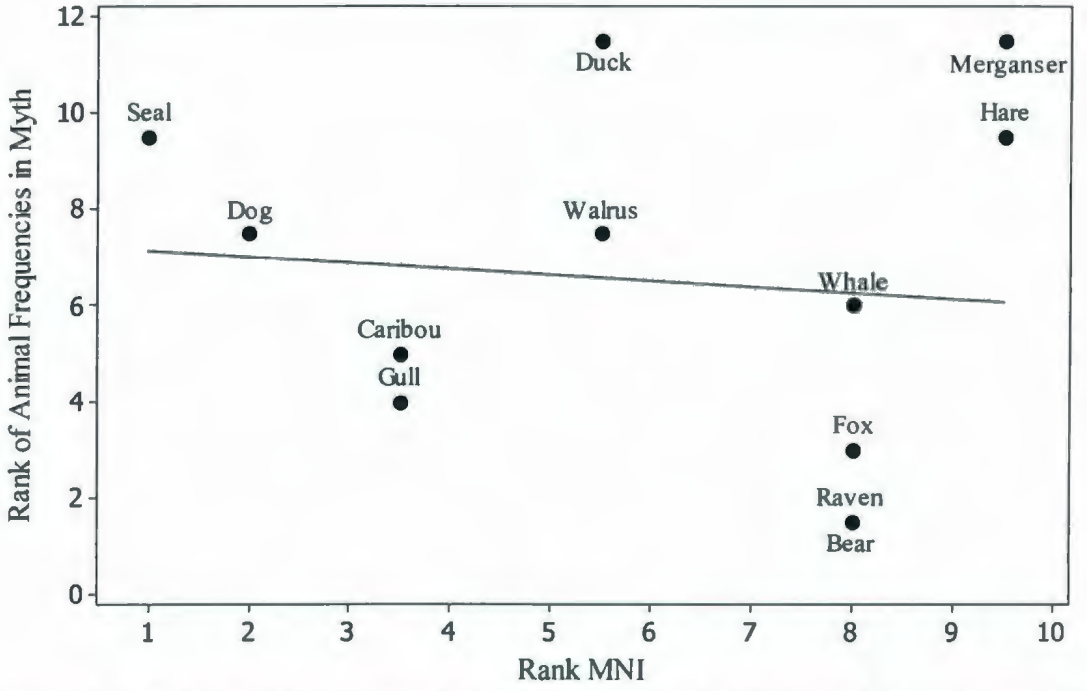


Figure 6.2: Relationship between Animal Frequencies in Myths and Faunal Assemblages at Kongu; Kendall's Tau-a = 0.32, r = -0.104, p = 0.748

For Nachvak Village, the calculation of Kendall's tau (0.60) shows that there is a slight agreement between the rankings of taxa in the faunal remains and myths. There is also a weak, negative correlation (-0.276) that is not statistically significant (0.440). This suggests that the animals most frequently procured were not often depicted in myths. Figure 6.1 shows interesting spatial relationships among the taxa that seem to produce about four groupings of animals when divided by quadrant. There are those, such as hares and, to a lesser degree, walrus, that were infrequently observed in both the faunal assemblages and the myths. There are those, such as bears, gulls and possibly whales, which appear frequently in the myths, but not in the faunal assemblages. Some taxa, such as seal and dog, appear frequently in the faunal assemblages but rarely in the myths. Lastly, foxes and caribou are relatively common in both the faunal assemblages and myths. Whales, which were spatially closest to gulls, could also be placed in the same quadrant as hares and walrus, as they border the line between these quadrants. Ptarmigan were spatially closest to walrus and dog, which reflects the fact that they were somewhat common in both datasets.

Generally, it appears that those animals procured by the Inuit most frequently at Nachvak Village (seals) were not the ones depicted most frequently in myths, while those occurring most frequently in the myths (bears) appear to have been rarely hunted. The majority of other taxa tended to reflect the weak relationship of the statistical test: that the frequency of an animal's occurrence in the faunal assemblages was somewhat comparable to their frequency in the myths.

For Kongu, the calculation of Kendall's tau (0.32) shows that there is more

independence between the rankings of taxa in the faunal remains and the myths. There is a weak negative correlation (-0.104) that is also not statistically significant (0.748). This suggests that the taxa most frequently procured were almost completely independent from those depicted in myths. Figure 6.2 shows different spatial relationships among the taxa than what was observed for Nachvak Village. Hares and mergansers were associated with the upper right quadrant, indicating they occurred infrequently in both the faunal remains and the myths. Ravens and bears share a dot on the scatterplot, which means that they both occurred in 12 myths and had the same MNI. Interestingly, the Inuit in other parts of the arctic strongly associate these taxa with human-animal transformations (Oosten and Laugrand 2006: 193). Ravens, bears and foxes occurred most frequently in the myths but did not occur often in the Kongu assemblage. Gulls and caribou occurred frequently in both the faunal remains and myths. Seals and dogs were deposited most often at Kongu, but both occurred infrequently in myths. Ducks also occurred rarely in the myths, but were neither rare nor abundant in the faunal assemblages. Whales and walruses were similar in that they both occurred in the myths and faunal assemblages in comparable abundances. Generally, the majority of taxa in Figure 6.2 occur in comparable frequencies in the faunal assemblages and myths. The taxa procured most often at Kongu did not occur in comparable frequencies in the myths while those that existed most often in myths were procured infrequently. This latter trend was also observed at Nachvak Village, where it was expressed to a greater degree. It is possible that the remains of some of the taxa occurring most frequently in myths, such as ravens and other birds, may not have preserved archaeologically, and thus the statistical

relationships observed may be more skewed towards large mammals.

6.4 The Precontact Inuit Animal Classification System

Figure 6.3 depicts one potential classification scheme for the precontact Inuit of Labrador. This classification was primarily constructed using the economic, seasonal and natural relationships perceived to exist among animals based on the content of the faunal assemblages, as there were a great deal of zooarchaeological data but relatively few myths. The myth data were used as a secondary source of information regarding relationships among animals that augmented the strength of the faunal and ecologically-based associations. This classification scheme addresses only those taxa recovered from Nachvak Village.

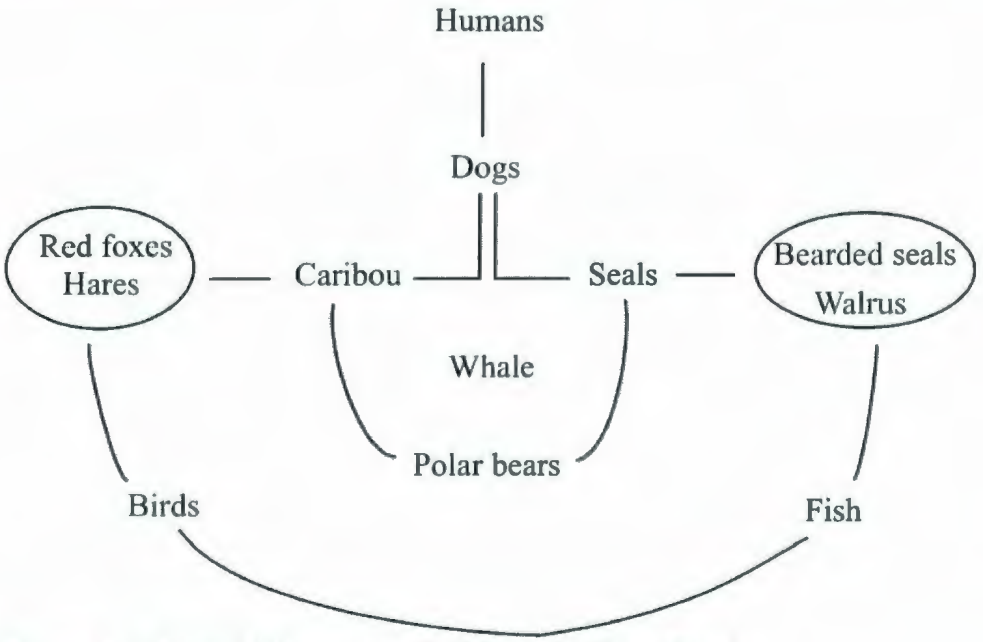


Figure 6.3: Potential Precontact Inuit Animal Classification

The classification in Figure 6.3 attempts to convey the non-hierarchical nature of many indigenous worldviews (e.g. Sharifian 2003), and thus the placement of a taxon

above or below another does not reflect superiority or inferiority of that taxon. Humans would have been associated with all fauna at Nachvak Village, particularly because of the Inuit hunting-based economy, and there were no doubt differences in the degree to which men, women, children, elders and other groups of people interacted with animals and the degree of this interaction. Regardless, the classification associates humans solely with dogs. Dogs act as the bridge that joins humans with the rest of the animal world because of their unusual status in Inuit life. They are the only animals owned and utilised by the Inuit, both as vehicles of transportation and as representatives of evil spirits whose lives could be offered in exchange for that of their owner, which indicates that they were seen as being neither human or wild animal (Taylor 1993). They were kept in the entrance tunnel of the house during winter, which is not quite inside the house but not outside either (van Londen 1999:116). The faunal record shows that they were not a prominent food source, and yet the presence of cut marks on some of their remains show they butchered for fur and food when necessary. Within myths, dogs are only associated with humans.

The faunal remains indicate that the two most frequently occurring taxa at Nachvak Village were caribou and seals, particularly small seals. These taxa also reflect complementary oppositions within the Inuit economy. Caribou were hunted inland during the summer months while seals were hunted on the fast ice during the winter, as well as during other seasons and in other spatial settings. Being central to the economy and seasonal settlement patterns of the precontact Inuit, it is likely that these taxa were central to the ways in which the Inuit viewed other animals, and hence central to the

classification system.

Polar bears were difficult to place in the classification scheme, as they are naturally associated with many taxa and many environments. They appeared infrequently in the faunal assemblages and, when present, frequently occur as teeth or cranial elements, which do not have a high dietary value. By nature, they are terrestrial animals that spend much of their time in the water and on the sea ice. Thus, Figure 6.3 connects them to caribou and seals, to show the ability of polar bears to traverse the realms of land and sea. Polar bears are also predators of seals and scavengers of caribou remains, and could be hunted in the summer and winter. Polar bears also appear opposite humans and their dogs, which are among the only species that kill bears. The myths suggest, based on the frequency of their portrayal and on the descriptions of their physical prowess, that polar bears existed in a special place within precontact Inuit ideology (Hallowell 1926). This is further shown by the fact that excavators recovered four polar bear carvings from Nachvak Village and Kongu, to the exclusion of all other non-human animal figurines. The choices made when deciding to reproduce an animal's likeness in art has implications for beliefs about that animal (e.g. Werness 2000), and the relative rarity of animal depictions on precontact Inuit sites suggests that those animals portrayed in art were considered unique.

Caribou are associated with red foxes and hares in the classification. Like caribou, these taxa are land-based. Unlike caribou, they are smaller, and are typically procured in the opposite season: winter. Red foxes were procured more frequently than hares at Nachvak Village, and yet both were of rather negligible importance in the faunal

assemblages. Foxes and hares were also associated with caribou in the mythology, which likely reflects this seasonal relationship.

Foxes and hares are further associated with birds, which could encompass both migratory and non-migratory species, however no migratory bird remains were recovered from Nachvak Village. The birds that were recovered were ptarmigan and gull, both of which are typically procured during the winter. Although ptarmigan and gulls differ from foxes and hares in their ability to fly, they are similar in that they spend much of their time on or close to land. Birds were also similar to foxes and hares in that they were identified relatively rarely in the Nachvak Village faunal assemblages. The spatial analysis showed that bird and hare remains occurred in localised areas within the dwelling, likely a reflection of butchery practices.

Birds are associated with fish in Figure 6.3, which reflects the changing of the seasons as well as predator/prey relations. While ptarmigan and gulls occurred in the vicinity of the site during the winter, many other birds would have migrated to the area during the spring (Godfrey 1966). Included among these migratory species are varieties of marine birds that are associated with other birds through their ability to fly, but are also associated with the water. It is this association with water, and with fish as the prey of birds, that connects birds to fish in the classification of Figure 6.3. Fish were also recovered in comparable frequencies to birds in the faunal assemblages, reflecting their status as relatively minor taxa within the economy (e.g. Whitridge 2001).

Bearded seals and walruses are associated with each other because they are non-migratory sea mammals that are larger than the other seals, and which live in the sea as

fish and other seals do. Bearded seals were recovered in slightly higher frequencies than walruses, but both were much less common than either small-medium seals or whales. In the Sedna myth from Baffin Island, Sedna's finger joints turn into seals, bearded seals and whales, which suggests that the large seals were cognitively disassociated from other seals.

Whales, mainly bowheads in both the myths and the faunal assemblages, are another taxon whose place in the classification scheme was difficult to articulate. Precontact Inuit groups, especially in the Central Arctic, centred their entire economy, technology and social structure on the acquisition of whales, particularly bowheads (McCartney and Savelle 1985). From this perspective, the classification should place whales either in opposition to caribou or by themselves to reflect their status and economic importance. Within the faunal assemblages of Nachvak Village, whales appear to have had a prominent role in the precontact Inuit economy, based on the quantities of whale bone and baleen recovered, and thus they were placed in the centre of the classification.

This classification attempts to position the taxa recovered from Nachvak Village in relation to how the precontact Inuit may have regarded about them. A similar classification scheme created for the historic Inuit would be different, likely having a greater meaning placed on the cod fishery and birds, and less meaning placed on caribou.

6.5 Conclusions

The mythology data provided much information on the associations between animals perceived to exist by the historic Inuit. The myths, which originated in northern

Labrador, Ungava Bay, northeastern Hudson Bay, Baffin Island and Greenland, demonstrated the presence of some dichotomies that are inherent to Inuit conceptualisations of the world. While the contents of the myths do reflect aspects of relationships between animals, they also reflect the subtle preferences of the individual storytellers who relayed these myths to the ethnographers, as well as those of the ethnographers, who altered the myths to suit the needs of their audience.

In general, the frequency of animals portrayed in the myths had a weak, negative correlation with the frequency of the same animals in the faunal assemblages at both sites. The animals portrayed most frequently in the myths are those that held special significance for the historic Inuit. In particular, ravens and polar bears occurred most frequently. Seals, which occurred rarely in the myths, occurred most often in the faunal assemblages, suggesting that the Inuit viewed them almost exclusively as a food resource. This analysis has shown that many sources of information must be utilised in order to derive information on cognitive representations of animals, especially for people who lived several hundred years in the past.

The classification scheme presented may prove useful as a type of model for future researchers to test against their own data. As this scheme was created using data from a localised area of the eastern arctic, it would be interesting to know to what degree other faunal samples agree with this scheme, and what any variance might mean for general precontact and historic Inuit perceptions of animals.

Chapter 7

Conclusions and Future Directions

The way of life of arctic cultures greatly affected the ways in which they viewed animals. Specifically, the precontact Inuit would have incorporated thoughts about animals into all spheres of their culture, as so much of their food, raw materials, and technologies were derived from animal materials. This contrasts with Western cultures where animals are often pets or livestock or wild beasts that are much removed from daily life. In the absence of sources that reveal detailed information about the thoughts and behaviours of prehistoric peoples, most archaeologists working with prehistoric assemblages must interpret the material culture using aspects of their own worldview. This can lead to interpretations of materials recovered from precontact Inuit sites that separate and deemphasise symbolic and ideological elements from economic and social ones, a practice that does not reflect indigenous perceptions of human-animal or human-ecosystem relationships. The overall objective of this thesis was to construct elements of an indigenous classification scheme that would outline some of the ways in which the precontact Inuit conceptualised animals in the economic, social and ideological realms of their culture. To do this, three research questions were posed that were intended to generate information about associations of taxa in faunal remains and mythology.

The first research question sought to determine how species composition and abundance differed within and between house and midden contexts at a prehistoric (Nachvak Village) and historic (Kongu) site in Nachvak Fiord, northern Labrador. The faunal assemblages from these sites were relatively similar; they were both comprised of

an overwhelming proportion of small seal remains, most of which were likely ringed seal, as well as an assortment of foxes, hares, dogs, caribou, larger seals, walrus, whales, fish and birds. At Kongu, the small seal remains were noticeably younger in age than the ones from Nachvak Village, which suggests that hunting practices changed between the time that Nachvak Village was abandoned and Kongu occupied. Nachvak Village contained many more caribou remains whereas Kongu contained much more bird and fish bone. The middens at Nachvak Village contained very little bone, relative to the large amounts recovered from the houses. The middens at Kongu, on the other hand, contained abundant, well preserved faunal remains.

A spatial analysis was conducted by mapping the relative locations of faunal remains recovered from House 2 at Nachvak Village. Within a dwelling, the place allotted to particular animal remains provides information about the place that these animals occupy within the precontact Inuit cognitive framework. In an attempt to investigate patterned discard in space, the relative position of faunal remains from this house was examined based on specific and more general taxonomic representation, body part frequency, season of procurement, the natural realm normally associated with each taxon (water, sea, air), age and location of cut marks. This analysis revealed that disposal practices differed between the fill and floor layers within the dwelling, with lamp platform areas being associated with much of the faunal remains recovered from both natural layers. The House 2 assemblage also revealed that an array of sea and land mammal remains exhibited carnivore gnaw marks, which were recovered from many of the architectural areas and were observed on most types of body parts. To some degree,

this suggests that the spatial placement of the faunal remains in this assemblage does not reflect original deposition, but instead reflects the work of taphonomic agents, particularly carnivores.

The second research question addressed the ways in which historic Inuit mythology recorded from northern Labrador, Ungava Bay, northeastern Hudson Bay, Baffin Island and Greenland, described animals, with the purpose of learning what other patterned associations existed among taxa that were potentially not observable in the zooarchaeological record. This analysis revealed that the taxa that occurred most frequently in the myths were the ones that were rarely procured at Nachvak Village, and infrequently procured at Kongu. The animal associations in the myths reflect various aspects of the natural behaviours and environments of the species, as well as more unusual associations that link taxa which normally do not co-occur in nature. Further analysis of these associations may reveal interesting aspects of the Inuit worldview.

The last research questions related to the construction of an indigenous classification scheme that was more reflective of the precontact Inuit's cognitive associations amongst taxa than conventional Linnaean taxonomy. This involved incorporating aspects of the faunal data, spatial analysis and myth data to articulate how the various taxa that were recovered in the faunal assemblage at Nachvak Village might have been associated with each other within the precontact Inuit cognitive framework. The derived classification scheme is only one possibility among many that might have existed for the precontact Inuit, but it demonstrates that the Linnaean classification scheme used by modern scientists likely does not invariably reflect the relationships that

indigenous peoples of the past had with animals.

Such a project is rarely attempted in zooarchaeology, even though much evidence exists that animals were not only a source of food and raw materials, but elements in complex rituals and ideology. By attempting to identify the ways in which animals were mentally conceived by people in the past, the ability of zooarchaeological studies to address questions other than narrowly ecological and economic ones is increased. Unfortunately, the process of identifying past mental conceptualisations is not an easy task. To explore aspects of prehistoric ideology, it is necessary to investigate multiple data types and to find connections between these data that reveal aspects of the prehistoric mindset relating to the decisions behind animal procurement, consumption, disposal, ritual, depiction, symbolism and ideology. Future work should seek to acquire and integrate information on more archaeologically recovered animal bones, animal figurines, ethnographic literary portrayals of animals, and historical linguistic data. In order to infer the cognitive elements underlying past cultures' perceptions of reality, it is essential that archaeologists evaluate multiple lines of evidence, because the same general mental structures formed all items of material culture, which means that all items of material culture are interrelated to some degree.

Cited References

Amorosi, Thomas
1992 Non-Metric Trait Distinctions for the North Atlantic-Eastern Arctic Phocidae. Paper presented at the North Atlantic/Eastern Arctic Bio-Cultural Workshop, New York, Jan. 22-26.

Anawak, Jack
1989 Inuit Perceptions of the Past. In *Who Needs the Past? Indigenous Values and Archaeology,* edited by R. Layton, pp. 45-50. Unwin Hyman, London.

Antweiler, Christoph
2004 Local Knowledge Theory and Methods: An Urban Model from Indonesia. In *Investigating Local Knowledge: New Directions, New Approaches,* edited by Alan Bicker, Paul Sillitoe and Johan Pottier, pp.1-34. Ashgate Publishing, Aldershot, Hants, England.

Ashcroft, Mark H.
2002 *Cognition.* Prentice-Hall, New Jersey.

Auger, Reginald
1991 European and Inuit Contact: Evidence from a 1769 Labrador Inuit Dwelling. *Études/Inuit/Studies* 15(1):131-138.

Baerreis, David A.
1961 The Ethnohistoric Approach and Archaeology. *Ethnohistory* 8(1):49-77.

Banfield, A.W.F.
1974 *The Mammals of Canada.* University of Toronto Press, Toronto.

Barthes, Roland
1972 *Mythologies.* Translated by Annette Lavers. Hill and Wang, New York.

Bates, Peter
2007 Inuit and Scientific Philosophies about Planning, Prediction and Uncertainty. *Arctic Anthropology* 44(2):87-100.

Behrensmeyer, Anna K.
1978 Taphonomic and Ecologic Information from Bone Weathering. *Paleobiology* 4(2):150-162.

Bender, Barbara
1999 Subverting the Western Gaze: Mapping Alternative Worlds. In *The Archaeology and Anthropology of Landscape,* edited by Peter J. Ucko and Robert Layton, pp.

31-45. Routledge, London.

Berlin, Brent, Dennis E. Breedlove and Peter H. Raven
1973 General Principles of Classification and Nomenclature in Folk Biology. *American Anthropologist* 75(1):214-242.

Betts, Matthew and T. Max Friesen
2004 Quantifying Hunter-Gatherer Intensification: A Zooarchaeological Case Study from Arctic Canada. *Journal of Anthropological Archaeology* 23:357-384.

Bielawski, Ellen
1989 Dual Perceptions of the Past: Archaeology and Inuit Culture. In *Conflict in the Archaeology of Living Traditions,* edited by R. Layton, pp. 228-236. Unwin Hyman, London.

Binford, Lewis R.
1982 The Archaeology of Place. *Journal of Anthropological Archaeology* 1, 5-31.

Blake, Dale
2001 *Inuit Life Writings and Oral Traditions: Inuit Myths.* Educational Resource Development Co-operative, St. John's NL.

Brewer, Douglas
1992 Zooarchaeology, Method, Theory, and Goals. In *Archaeological Method and Theory, Volume 4,* edited by Michael B. Schiffer, pp. 195-244. University of Arizona Press, Tucson.

Boas, Franz
1907 *The Eskimo of Baffin Land and Hudson Bay, from notes collected by Capt. George Comer, Capt. James S. Mutch, and Rev. E. J. Peck.* Trustees, American Museum of Natural History, New York.

Boaz, Joel and Espen Uleberg
2000 Quantifying the Non-Quantifiable: Studying Hunter-Gatherer Landscapes. In *Beyond the Map: Archaeology and Spatial Technologies,* edited by Gary Lock, pp. 101-115. NATO Science Series: Life Sciences, IOS, Amsterdam.

Brice-Bennett, Carol
1977 Land Use in the Nain and Hopedale Regions. In *Our Footprints are Everywhere: Inuit Land Use and Occupancy in Labrador,* edited by Carol Brice-Bennett, pp. 97-204. Labrador Inuit Association, Nain.

Briggs, Jean L.
1991 Expecting the Unexpected: Canadian Inuit Training for an Experimental

Lifestyle. *Ethos* 19(3):259-287.

Brown, Cecil H.
2000 Folk Classification: An Introduction. In *Ethnobotany: A Reader,* edited by Paul E. Minnis, pp. 65-68. University of Oklahoma Press, Norman.

Brown, Cecil H., John Kolar, Barbara J. Torrey, Tipawan Truoong-Quang, and Phillip Volkman
1976 Some General Principles of Biological and Non-Biological Folk Classification. *American Ethnologist* 3(1):73-85.

Bulmar, Ralph
1967 Why is the Cassowary Not a Bird? A Problem of Zoological Taxonomy Among the Karam of the New Guinea Highlands. *Man* 2(1):5-25.

Butler, Virginia L. and Roy A. Schroeder
1998 Do Digestive Processes Leave Diagnostic Traces on Fish Bones? *Journal of Archaeological Science* 25:957-971.

Cabak, Melanie and Stephen Loring
2000 "A Set of Very Fair Cups and Saucers": Stamped Ceramics as an Example of Inuit Incorporation. *International Journal of Historical Archaeology* 4(1):1-34.

Cannon, Debbi Yee
1987 *Marine Fish Osteology: A Manual for Archaeologists.* Archaeology Press, Burnaby BC.

Castree, Noel and Bruce Braun
1998 The Construction of Nature and the Nature of Construction: Analytical Tools for Building Survivable Futures. In *Remaking Reality: Nature at the Millennium,* edited by Bruce Braun and Noel Castree, pp. 3-42. Routledge, London.

Champagne, Roland
1992 *The Structuralists on Myth: An Introduction.* Garland Publishing, New York.

Cohen, Daniel M., Tadashi Inada, Tomio Iwamoto and Nadia Scialabba
1990 *FAO Species Catalogue, Volume 10. Gadiform Fishes of the World: An Annotated and Illustrated Catalogue of Cods, Hakes, Grenadiers and Other Gadiform Fishes Known to Date.* Food and Agriculture Organization of the United Nations, Rome.

Coltrain, Joan Brenner, M. Geoffrey Hayes and Dennis H. O'Rourke
2004 Sealing, Whaling and Caribou: The Skeletal Isotope Chemistry of Eastern Arctic Foragers. *Journal of Archaeological Science* 31:39-57.

Darwent, Christyann Marie
2000 High Arctic Palaeoeskimo Fauna: Temporal Changes and Regional Differences. Unpublished PhD dissertation, Dept. of Anthropology, University of Missouri-Columbia.

Dawson, Peter C.
2003 Examining the Impact of Euro-Canadian Architecture on Inuit Families Living in Arctic Canada. *Proceedings: Space Syntax: 4th International Symposium, Volume 1,* edited by J. Hanson, pp. 21.1-21.16. Bartlett School of Graduate Studies, University College London, London.

DeBoer, Warren R.
1997 Ceremonial Centres from the Cayapas (Esmeraldas, Ecuador) to Chillicothe (Ohio, USA). *Cambridge Archaeological Journal* 7(2):225-253.

Descola, Philippe
1994 *In the Society of Nature: A Native Ecology in Amazonia.* Cambridge University Press, Cambridge.

Diab, Mark C.
1998 Economic Utility of the Ringed Seal (*Phoca hispida*): Implications for Arctic Archaeology. *Journal of Archaeological Science* 25:1-26.

Ellen, Roy
1979 Introductory Essay. *Classifications in Their Social Context,* edited by Roy F. Ellen and David Reason, pp. 1-32. Academic Press, London.

2003 Arbitrariness and Necessity in Ethnobiological Classification: Notes on Some Persisting Issues. *Nature Knowledge: Ethnoscience, Cognition and Utility,* edited by Glauco Sanga and Gherardo Ortalli, pp. 47-56. Berghahn Books, New York.

Fabre, Daniel
2003 The Symbolic Uses of Nature. *Nature Knowledge: Ethnoscience, Cognition and Utility,* edited by Glauco Sanga and Gherardo Ortalli, pp. 229-230. Berghahn Books, New York.

Fienup-Riordan, Ann
1990 Original Ecologists? The Relationship Between Yup'ik Eskimos and Animals. *Eskimo essays: Yup'ik Lives and How We See Them,* edited by Ann Fienup-Riordan, pp. 167-191. Rutgers University Press, New Brunswick, NJ.

Fitzhugh, William
1980 Preliminary Report on the Torngat Archaeological Project. *Arctic* 33(3):585-

606.

1994 Staffe Island I and the Northern Labrador Dorset-Thule Succession. *Threads of Arctic Prehistory: Papers in Honour of William E. Taylor,* edited by David Morrison and Jean-Luc Pilon, pp. 239-268. Mercury Series, Archaeological Survey of Canada Paper 149, Canadian Museum of Civilization, Ottawa.

Foley, Robert
1981 Off-Site Archaeology. *Patterns of the Past: Studies in Honour of David Clarke,* edited by I. Hodder, G. Isaac and N. Hammond, pp. 157-183. Cambridge University Press, Cambridge.

Fred, E. B. and A. R. C. Haas
1919 The Etching of Marble by Roots in the Presence and Absence of Bacteria. *Journal of General Physiology* 1:631-638.

Gilbert, B. Miles
1980 *Mammalian Osteology.* B.M. Gilbert, Laramie, WY.

Gilbert, B. Miles, Larry D. Martin and Howard G. Savage
1981 *Avian Osteology*. B.M. Gilbert, Laramie, WY.

Godfrey, W. Earl
1966 *The Birds of Canada.* National Museum of Canada, Ottawa.

Goody, Jack
2003 Thought, Knowledge and Universals. *Nature Knowledge: Ethnoscience, Cognition and Utility,* edited by Glauco Sanga and Gherardo Ortalli, pp. 249-261. Berghahn Books, New York.

Graburn, Nelson H. H. and B. Stephen Strong
1973 *Circumpolar Peoples: An Anthropological Retrospective*. Goodyear Publishing, Pacific Palisades, CA.

Grayson, Donald K.
1984 *Quantitative Zooarchaeology: Topics in the Analysis of Archaeological Faunas*. Academic Press, Orlando.

Greenfield, Haskel J.
1999 The Origins of Metallurgy: Distinguishing Stone from Metal Cut-Marks on Bones from Archaeological Sites. *Journal of Archaeological Science* 26:797-808.

2002 Sexing Fragmentary Ungulate Acetabulae. *Recent Advances in Ageing and Sexing Animal Bones. Proceeding of the 9th Conference of the International*

Council of Archaeozoology, Durham, August 2002, edited by Deborah Ruscillo, pp. 68-86. Oxbow Books, Oxford.

Hallowell, A. Irving
1926 Bear Ceremonialism in the Northern Hemisphere. *American Anthropologist* 28:1-175.

Hansen, Keld Møller
2003 Pre-Boreal Elk Bones from Lundby-Mose. *Mesolithic on the Move: Papers Presented at the Sixth International Conference on the Mesolithic in Europe, Stockholm 2000,* edited by Lars Larsson, Hans Kindgren, Kjel Knutsson, David Loeffler and Agneta Åkerlund, pp. 521-526. Oxbow Books, Oxford.

Harris, Heather
2005 Indigenous Worldviews and Ways of Knowing as Theoretical and Methodological Foundations for Archaeological Research. *Indigenous Archaeologies: Decolonizing Theory and Practice,* edited by Claire Smith and H. Martin Wobst, pp. 33-41. Routledge, London.

Hawkes, Ernest William
1916 *The Labrador Eskimo*. Government Printing Bureau, Ottawa.

Hayden, Brian
1984 Are Emic Types Relevant to Archaeology? *Ethnohistory* 31(2):79-92.

Henshaw, Anne S.
1999 Location and Appropriation in the Arctic: An Integrative Zooarchaeological Approach to Historic Inuit Household Economies. *Journal of Anthropological Archaeology* 18:79-118.

Hesse, Brian and Paula Wapnish
1999 *Animal Bone Archaeology: From Objectives to Analysis.* Manuals on Archaeology 5. Taraxacum, Washington DC.

Hewitt, Doug
2000 A Clash of Worldviews: Experiences from Teaching Aboriginal Students. *Theory into Practice* 39(2):111-117.

Hodder, Ian and Scott Hutson
2003 *Reading the Past: Current Approaches to Interpretation in Archaeology.* Cambridge University Press, Cambridge.

Hodgetts, Lisa Maye
1999 *Animal Bones and Human Society in the Late Younger Stone Age of Arctic*

Norway Volume 2 of 2: Figures, Appendices and Bibliography. Unpublished PhD Thesis, Department of Archaeology, University of Durham.

2005 Dorset Palaeoeskimo Harp Seal Exploitation at Phillip's Garden (EeBi-1), North-Western Newfoundland. *The Exploitation and Cultural Importance of Sea Mammals,* edited by Gregory G. Monks, pp. 62-76. Oxbow Books: Oxford.

Holt, Julie Zimmermann
1996 Beyond Optimization: Alternative Ways of Examining Animal Exploitation. *World Archaeology* 28(1):89-109.

Howes, Michael and Robert Chambers
1980 Indigenous Technical Knowledge: Analysis, Implications and Issues. *Indigenous Knowledge Systems and Development,* edited by David W. Brokensha, D. M. Warren and Oswald Werner, pp. 329-340. University Press of America, Washington DC.

Hudson, Charles
1976 *The Southeastern Indians*. University of Tennessee Press, Knoxville.

Ingold, Tim
2003 Two Reflections of Ecological Knowledge. *Nature Knowledge: Ethnoscience, Cognition and Utility,* edited by Glauco Sanga and Gherardo Ortalli, pp. 301-311. Berghahn Books, New York.

Janes, Robert
1983 *Archaeological Ethnography among MacKenzie Basin Dene, Canada.* Arctic Institute of North America, Technical Paper No. 28. University of Calgary, Calgary.

Johnson, Matthew
1999 *Archaeological Thought: An Introduction.* Blackwell Publishers, Oxford.

Kaplan, Susan A
1980 Neo-Eskimo Occupation of the Northern Labrador Coast. *Arctic* 33(3):646-658.

1983 Economic and Social Change in Labrador Neo-Eskimo Culture. Unpublished PhD dissertation, Dept. of Anthropology, Bryn Mawr College.

1985 European Goods and Socio-Economic Change in Early Labrador Inuit Society. *Cultures in Contact: The European Impact on Native Cultural Institution in Eastern North America, AD 1000-1800,* edited by William W. Fitzhugh, pp. 45-69. Smithsonian Institution Press, Washington DC.

Kaplan, Susan A. and Jim M. Woollett
2000 Challenges and Choices: Exploring the Interplay of Climate, History, and Culture on Canada's Labrador Coast. *Arctic and Alpine Research* 32(3):351-359.

Kennedy, John C.
1985 Northern Labrador: An Ethnohistorical Account. *The White Arctic: Case Studies from the Labrador Coast,* edited by Robert Paine, pp. 264-305.Institute of Social and Economic Research, Memorial University of Newfoundland, St. John's NL.

Kent, Susan
1981 The Dog - An Archaeologist's Best Friend or Worst Enemy: The Spatial Distribution of Faunal Remains. *Journal of Field Archaeology* 8:367-372.

Kronenfeld, David and Henry W. Dicker
1979 Structuralism. *Annual Review of Anthropology* 8:503-541.

Landon, David B
2005 Zooarchaeology and Historical Archaeology: Progress and Reports. *Journal of Archaeological Method and Theory* 12(1):1-36.

Layton, Robert
2006 Structuralism and Semiotics. *Handbook of Material Culture,* edited by Christopher Tilley, Webb Keane, Susanne Küchler, Michael Rowlands and Patricia Spyer, pp. 29-42. SAGE Publications, London.

Le Mouël, Jean-François and Maryke Le Mouël
2002 Aspects of Early Thule Culture as Seen in the Architecture of a Site on Victoria Island, Amundsen Gulf Area. *Arctic* 55 (2):167-189.

Leone, Mark
1982 Some Opinions on Recovering Mind. *American Antiquity* 47(4):742-760.

Lévi-Strauss, Claude
1963 *Totemism.* Translated by Rodney Needlam. Beacon Press, Boston.

1967 *Structural Anthropology.* Translated by Claire Jacobson and Brooke Grundfest Schoepf. Anchor, Garden City NY.

Loring, Stephen
1997 On the Trail to the Caribou House: Some Reflections on Innu Caribou Hunters in Ntessinan (Labrador). *Caribou and Reindeer Hunters of the Northern Hemisphere,* edited by Lawrence Jackson and Paul Thacker, pp. 185-220. Avebury Press, London.

1998 The Archaeology of Eskimo Hütte (IkDb-2): Inuit Sovereignty in the Torngat. *Études/Inuit/Studies* 22(2):53-76.

Lyman, R. Lee
1994 *Vertebrate Taphonomy.* Cambridge Manuals in Archaeology. Cambridge University Press, Cambridge.

Lyman, R. Lee and Michael J. O'Brien
2001 The Direct Historical Approach, Analogical Reasoning, and Theory in Americanist Archaeology. *Journal of Archaeological Method and Theory* 8(4):303-342.

Lyman, R. Lee, J. M. Savelle and Peter Whitridge
1992 Derivation and Application of a Meat Utility Index for Phocid Seals. *Journal of Archaeological Science* 19(5):531-555.

Malinowski, Bronislaw
1971 *Myth in Primitive Psychology*. Negro Universities Press, Westport CT.

Marean, Curtis W. and Leanne Bertino
1994 Intrasite Spatial Analysis of Bone: Subtracting the Effect of Secondary Carnivore Consumers. *American Antiquity* 59(4):748-768.

Maxwell, Moreau S.
1985 *Prehistory of the Eastern Arctic*. Academic Press, Orlando.

McCartney, Allen P. and James M. Savelle.
1985 Thule Eskimo Whaling in the Central Canadian Arctic. *Arctic Anthropology* 22: 37-58.

McGhee, Robert
1977 Ivory for the Sea Woman. *Canadian Journal of Archaeology* 1:141-149.

2000 Radiocarbon Dating and the Timing of the Thule Migration. *Identities and Cultural Contacts in the Arctic,* edited by M. Appelt, J. Berglund and H. C. Gulløv, pp. 181-191. Danish National Museum and Danish Polar Center, Copenhagen.

2009 When and Why did the Inuit Move to the Eastern Arctic? *The Northern World AD 900-1400: The Dynamics of Climate, Economy, and Politics in Hemispheric Perspectives,* edited by Herbert Maschner, Owen Mason and Robert McGhee, in press. University of Utah Press, Salt Lake City.

McNeill, William H.
1998 History and the scientific worldview. *History and Theory* 37 (1):1-13.

McNiven, Ian J. and Ricky Feldman.
2003 Ritually Orchestrated Seascapes: Hunting Magic and Dugong Bone Mounds in Torres Strait, NE Australia. *Cambridge Archaeological Journal* 13:169-194.

Mikhail, Mansour Y. and Harold E. Welch
1989 Biology of Greenland Cod, *Gadus ogac*, at Saqvaqjuac, Northwest Coast of Hudson Bay. *Environmental Biology of Fishes* 26:49-62.

Miller, Fred
1974 Biology of the Kaminuriak Population of Barrenground Caribou, Part 2. *Canadian Wildlife Service*, Report Series 31.

Million, Tara
2005 Developing an Aboriginal Archaeology: Receiving Gifts from White Buffalo Calf Woman. *Indigenous Archaeologies: Decolonizing Theory and Practice,* edited by Claire Smith and H. Martin Wobst, pp. 43-55. Routledge, London.

Minc, Leah D.
1986 Scarcity and Survival: The Role of Oral Tradition in Mediating Subsistence Crises. *Journal of Anthropological Archaeology* 5(1):39-113.

Minc, L. and K. Smith
1989 The Spirit of Survival: Cultural Responses to Resource Variability in North Alaska. *Bad Year Economics: Cultural Responses to Risk and Uncertainty,* edited by Paul Halstead and John O'Shea, pp. 2-39. Cambridge University, Cambridge.

Morris, Brian
2000 The Pragmatics of Folk Classification. *Ethnobotany: A Reader,* edited by Paul E. Minnis, pp. 69-87. University of Oklahoma Press, Norman.

Morrison, David A.
1997 *Caribou Hunters of the Western Arctic: Zooarchaeology of the Rita-Claire and Bison Skull Sites.* Canadian Museum of Civilization, Hull QC.

Mussell, Bill, Karen Cardiff and Jennifer White
2004 *The Mental Health and Well-Being of Aboriginal Children and Youth: Guidance for New Approaches and Services.* A report prepared for the British Columbia Ministry of Children and Family Development. Sal'i'shan Institute, Chilliwack.

Nicholas, George P.

2005 The Persistence of Memory; The Politics of Desire: Archaeological Impacts on Aboriginal Peoples and their Response. *Indigenous Archaeologies: Decolonizing Theory and Practice,* edited by Claire Smith and H. Martin Wobst, pp. 81-103. Routledge, London.

Norman, Howard
1990 *Northern Tales: Traditional Stories of Eskimo and Indian Peoples*. Pantheon Books, New York.

Nungak, Zebedee and Eugene Arima
1969 *Eskimo Stories/Unikkaatuat*. Bulletin 235. Anthropological Series 90. National Museums of Canada, Ottawa.

Oetelaar, Gerald Anthony
2000 Beyond Activity Areas: Structure and Symbolism in the Organization and Use of Space Inside Tipis. *Plains Anthropologist* 45(171):35-61.

Olsen, Bjørnar
1990 Roland Barthes: From Sign toText. *Reading Material Culture: Structuralism, Hermeneutics and Post-Structuralism,* edited by Christopher Tilley, pp. 163-205. Basil Blackwell, Oxford.

Oosten, Jarich G.
1986 Male and Female in Inuit Shamanism. *Études/Inuit/Studies* 10(1-2):115-131.

Oosten, Jarich and Frédéric Laugrand
2004 Time and Space in the Perception of Non-Human Beings Among the Inuit of Northeast Canada. *Folk* 46:85-120.

2006 The Bringer of Light: The Raven in Inuit Tradition. *Polar Record* 42(222):187-204.

Pales, Léon and Charles Lambert
1971 *Atlas Ostéologique Pour Servir à l'Identification des Mammifères du Quaternaire*. Éditions du Centre National de la Recherche Scientifique, Paris.

Park, Robert W.
1997 Thule Winter Site Demography in the High Arctic. *American Antiquity* 62(2): 273-284.

Patton, A. Katherine B.
1996 The Ideological Dimensions of Whale Bone Use in Thule Winter Houses. Unpublished MA dissertation, Dept. of Anthropology, McGill University.

Philo, Chris and Chris Wilbert
2000 Animal Spaces, Beastly Places: An Introduction. *Animal Spaces, Beastly Places: New Geographies of Human-Animal Relations,* edited by Chris Philo and Chris Wilbert, pp. 1-34. Routledge, London.

Politis, Gustavo G.
2003 The Theoretical Landscape and the Methodological Development of Archaeology in Latin America. *American Antiquity* 68(2):245-272.

Post, Lee
2003 *Canine Construction: A Guide to Preparing and Assembling a Wolf Skeleton or Digitigrade Designs.* L. Post, Homer AK.

2004a *Bear Bones: Building A Guide to Preparing and Assembling a Bear Skeleton or Plantigrade Possibilities.* L. Post, Homer AK.

2004b *Pinniped Projects: Articulating Seal and Sea Lion Skeletons.* L. Post, Homer AK.

Power, M., J. B. Dempson, J. D. Reist, C. J. Schwarz and G. Power
2005 Latitudinal Variation in Fecundity Among Arctic Charr Populations in Eastern North America. *Journal of Fish Biology* 67:255-273.

Purdue, James R.
1983 Epiphyseal Closure in White-Tailed Deer. *The Journal of Wildlife Management* 47(4):1207-1213.

Randa, Vladimir
2002 Qui Se Ressemble S'Assemble: Logique de Construction et d'Organisation des Zoonymes en Langue Inuit. *Études/Inuit/Studies* 26(1):71-108.

Rasmussen, Knud
1929 *Intellectual Culture of the Iglulik Eskimos. Report of the Fifth Thule Expedition 1921-24.* Gyldendalske Boghandel, Nordisk Forlag, Copenhagen.

1930a *Observations on the Intellectual Culture of the Caribou Eskimos. Report of the Fifth Thule Expedition 1921-24.* Gyldendalske Boghandel, Nordisk Forlag, Copenhagen.

1930b *Iglulik and Caribou Eskimo Texts. Report of the Fifth Thule Expedition 1921-24.* Gyldendalske Boghandel, Nordisk Forlag, Copenhagen.

1931 *The Netsilik Eskimos: Social Life and Spiritual Culture. Report of the Fifth Thule Expedition 1921-24.* Gyldendalske Boghandel, Nordisk Forlag,

Copenhagen.

Reitz, Elizabeth J. and Elizabeth S. Wing
1999 *Zooarchaeology*. Cambridge Manuals in Archaeology. Cambridge University Press, Cambridge.

Ringrose, T. J.
1993 Bone Counts and Statistics: A Critique. *Journal of Archaeological Science* 20(2):121-157.

Rink, Henrik
1974 *Tales and Traditions of the Eskimo*. McGill-Queen's University Press, Montreal.

Savelle, James M. and Allen P. McCartney
1999 Thule Eskimo Bowhead Whale Interception Strategies. *World Archaeology* 30(3):437-451.

Scarre, Chris
1990 The Western World View in Archaeological Atlases. *The Politics of the Past,* edited by P. Gathercole and D. Lowenthal, pp. 11-18. Unwin Hyman, London.

Schledermann, Peter
1971 The Thule Tradition in Northern Labrador. Unpublished MA thesis, Department of Anthropology, Memorial University of Newfoundland.

1976 Thule Culture Communal Houses in Labrador. *Arctic* 29(1):27-37.

Schmid, Elisabeth
1972 *Atlas of Animal Bones for Prehistorians, Archaeologists and Quaternary Geologists*. Elsevier Publishing, Amsterdam.

Sharp, Henry S.
1976 Man: Wolf: Woman: Dog. *Arctic Anthropology* 13(1):25-34.

Sharifian, Farzad
2003 On Cultural Conceptualisations. *Journal of Cognition and Culture* 3(3):187-207.

Silver, I. A.
1970 The Ageing of Domestic Animals. *Science in Archaeology: A Survey of Progress and Research,* edited by Don R. Brothwell and Eric Higgs, pp. 282-302. Praeger, New York.

Søby, Regitze Margrethe
1969 The Eskimo animal cult. *Folk* 11:43-78.

Stenton, Douglas R. and Robert W. Park
1994 Formation Processes and Thule Archaeofaunas. *Threads of Arctic Prehistory: Papers in Honour of William E. Taylor*, edited by David Morrison and Jean-Luc Pilon, pp. 409-422. Canadian Museum of Civilization, Mercury Series, Archaeological Survey of Canada Paper 149, Ottawa.

Stewart, Andrew M., Darren Keith and Joan Scottie
2004 Caribou Crossings and Cultural Meanings: Placing Traditional Knowledge and Archaeology in Context in an Inuit Landscape. *Journal of Archaeological Method and Theory* 11(2):183-211.

Storå, Jan
2000 Skeletal Development in the Grey Seal *Halichoerus grypus*, the Ringed Seal *Phoca hispida botnica*, the Harbour Seal *Phoca vitulina vitulina* and the Harp Seal *Phoca groenlandica*. Epiphyseal fusion and life history. *Assessing season of capture, age and sex of archaeofaunas. Archaeozoologia*, Vol. XI, edited by A. Tay, pp. 199-222. ArchaeoZoologia, Grenoble, France.

Tanner, Adrian
1979 *Bringing Home Animals: Religious Ideology and Mode of Production of the Mistassini Cree Hunters.* Institute of Social and Economic Research, Memorial University of Newfoundland, St. John's NL.

Taylor, J. Garth
1977 Traditional Land Use and Occupancy by the Labrador Inuit. *Our Footprints are Everywhere: Inuit Land Use and Occupancy in Labrador,* edited by Carol Brice-Bennett, pp. 49-58. Labrador Inuit Association, Nain.

1988 Labrador Inuit Whale Use During the Erly Contact Period. *Arctic Anthropology* 25(1):120-130.

1993 Canicide in Labrador: Function and Meaning of an Inuit Killing Ritual. *Études/Inuit/Studies* 17(1):3-13.

Thackeray, J. Francis
2005 Eland, Hunters and Concepts of 'Sympathetic Control' Expressed in South African Rock Art. *Cambridge Archaeological Journal* 15(1):27-34.

Treude, Erhard
1974 *Nordlabrador: Entwicklung und Struktur von Siedlung und Wirtschaft in einem polaren Grenzraum der Ökumene.* Westfälische Geographische Studien 29. Institut für Geographie und Länderkunde, Münster, Westfalen.

Tuck, James

1975 *Prehistory of Saglek Bay, Labrador: Archaic and Palaeo-Eskimo Occupations.* Mercury Series, Archaeological Survey of Canada Paper No. 32. National Museum of Man, Ottawa.

Turner, Lucien M.
1979 *Indians and Eskimos in the Quebec-Labrador Peninsula: Ethnology of the Ungava District, Hudson Bay Territory.* Presses Coméditex, Québec.

Turner, Nancy J.
2000 General Plant Categories in Thompson (Nlaka'pamux) and Lillooet (Stl'atl'imx), Two Interior Salish Languages of British Columbia. *Ethnobotany: A Reader,* edited by Paul E. Minnis, pp. 88-117. University of Oklahoma Press, Norman.

Ubelaker, Douglas H.
1997 Taphonomic Applications in Forensic Anthropology. *Forensic Taphonomy: The Postmortem Fate of Human Remains,* edited by William D. Haglund, pp. 77-90. CRC Press, Boca Raton FL.

van Londen, Selma
1999 Mythology and Identity Construction Among the Inuit. *Arctic Identities: Continuity and Change in Inuit and Saami Societies,* edited by Jarich Oosten and Cornelius Remie, pp. 109-134. Research School CNWS, School of Asian, African and Amerindian Studies, Universiteit Leiden, Netherlands.

Waguespack, Nicole M.
2002 Caribou Sharing and Storage: Refitting the Palangana Site. *Journal of Anthropological Archaeology* 21:396-417.

Walker, James R.
1989 *Lakota Myth.* University of Nebraska Press, Lincoln.

Watkins, Joe E.
2003 Beyond the Margins: American Indians, First Nations, and Archaeology in North America. *American Antiquity* 68(2):273-285.

Wenzel, George
1991 *Animal Rights, Human Rights: Ecology, Economy and Ideology in the Canadian Arctic.* University of Toronto Press, Toronto.

Werness, Hope
2000 *The Continuum Encyclopedia of Native Art: Worldview, Symbolism and Culture in Africa, Native North America and Oceania.* Continuum, New York.

White, Theodore E.
1953 A Method of Calculating the Dietary Percentages of Various Food Animals Utilized by Aboriginal Peoples. *American Antiquity* 18:396-398.

Whitridge, Peter
2001 Zen Fish: A Consideration of the Discordance Between Artifactual and Zooarchaeological Indicators of Thule Inuit Fish Use. *Journal of Anthropological Archaeology* 20 (1):3-72.

2002 Social and Ritual Determinants of Whale Bone Transport at a Classic Thule Winter Site in the Canadian Arctic. *International Journal of Osteoarchaeology* 12 (1):65-75.

2004a Landscapes, Houses, Bodies, Things: 'Place' and the Archaeology of Inuit Imaginaries. *Journal of Archaeological Method and Theory* 11(2):213-250.

2004b Archaeological Research at Nachvak Fiord, Northern Labrador, July-August 2003. Report on file, Provincial Archaeology Office, St. John's, NL.

2005 Archaeological Research at Nachvak Fiord, Northern Labrador, July-August 2004. Report on file, Provincial Archaeology Office, St. John's NL.

2006 Archaeological Research at Nachvak Fiord, Northern Labrador, July-August 2005. Report on file, Provincial Archaeology Office, St. John's, NL.

2008 Reimagining the Iglu: Modernity and the Challenge of the Eighteenth Century Labrador Inuit Winter House. *Archaeologies* 4(2): 288-309.

Woollett, James
2003 An Historical Ecology of Labrador Inuit Culture Change. Unpublished PhD dissertation, Dept. of Anthropology, City University of New York.

2007 Labrador Inuit Subsistence in the Context of Environmental Change: an Initial Landscape History Perspective. *American Anthropologist* 109(1):69-84.

Woollett, James M, Anne S. Henshaw and Cameron P. Wake
2000 Palaeoecological Implications of Archaeological Seal Bone Assemblages: Case Studies from Labrador and Baffin Island. *Arctic* 53(4):395-413.